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SOUTHERN TEXTILE BULLETIN

VOL. 29

CHARLOTTE, N. C., THURSDAY, DECEMBER 31, 1925

NUMBER 18

A Weaver Can Run
Three or Four Times as Many
Northrop Automatic Worsted Looms
As the Weaver
On the Old-Style Worsted Looms
They Are Doing It
If This Interests You
Let's Talk It Over

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HOPEDALE MASSACHUSETTS

Southern Office Atlanta Georgia

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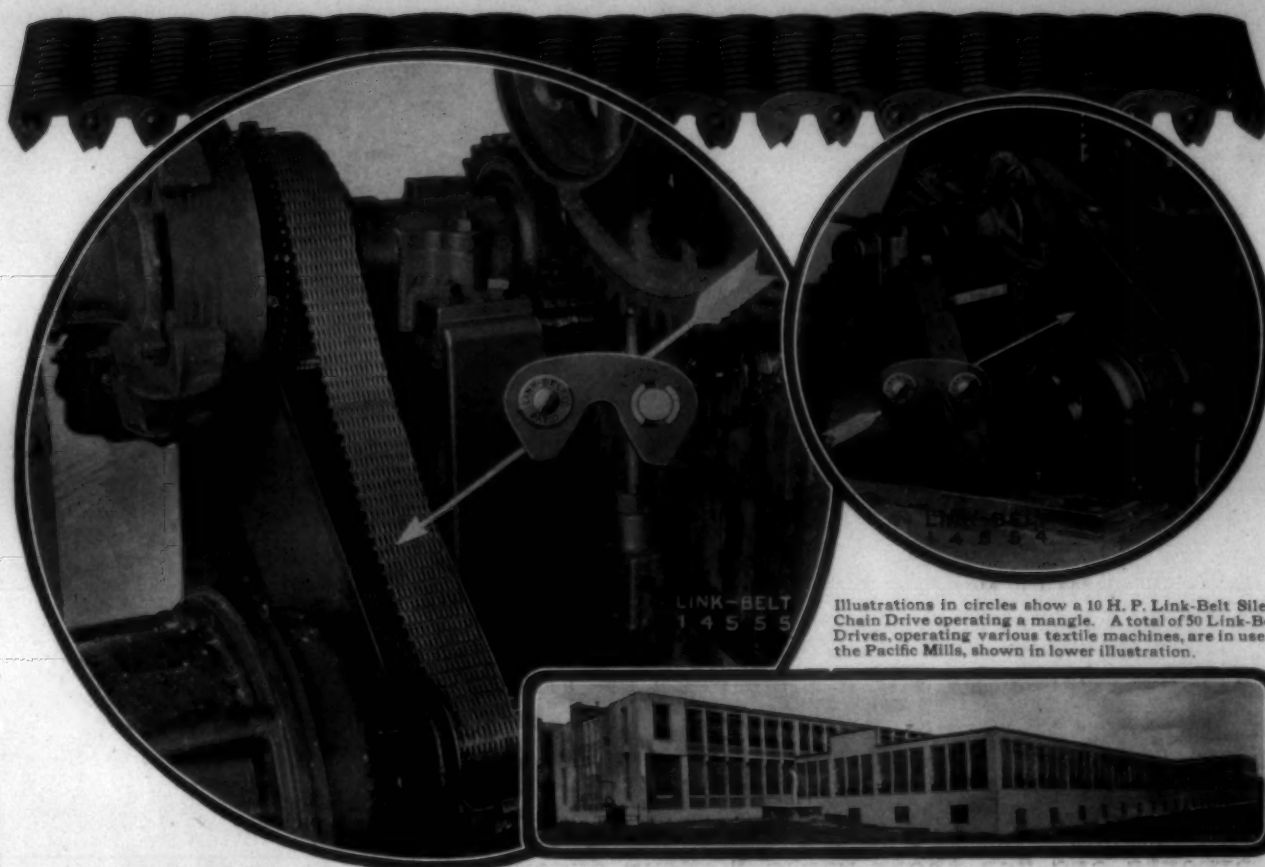


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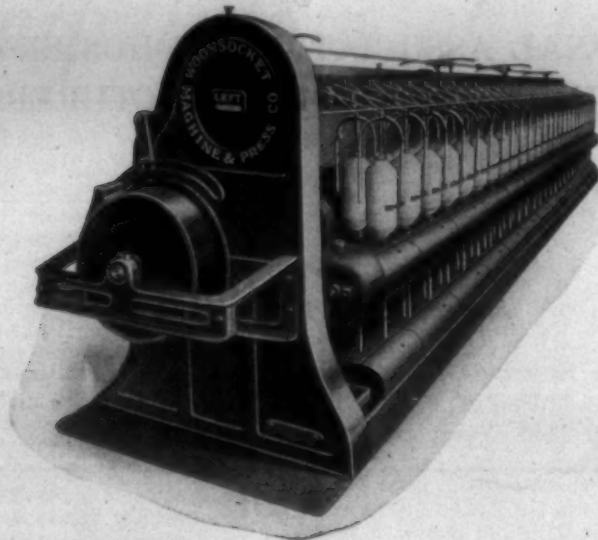
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Manipulation of Rayon

THOUGH this paper is chiefly concerned with rayon from the manufacturers standpoint, I propose to give a few points about the actual making of the viscose thread.

The raw material used is invariably woodpulp from the trees of the Scandinavian or Canadian forests, chiefly spruce, and the almost unlimited resources of this type of wood assure a good supply for the viscose industry. The logs are felled and transferred to the pulp mill, where they are stripped of their bark, broken into small chips and boiled under pressure with a solution of calcium and magnesium bisulphite to remove the gums and resins, leaving a colored cellulose, which is then bleached, pressed into sheets, and sent to the viscose works, where they are stored in a constant temperature to keep a uniformity of moisture. When required, the sheets are cut into convenient sizes for handling and covered with caustic soda to produce mercerizing. This is afterwards dried and milled in powerful grinders into the form of fine flocks or crumbs which are allowed to mature. This alkali cellulose is then treated with a solution of carbon-bisulphide to form a gelatinous substance, which in turn is treated with a weak solution of caustic soda to form the liquid viscose. This is cooled and filtered several times through fine calicoes to remove all imperfections. Air bubbles are then extracted and the liquid is fed to the spinning machines for conversion into thread, where it is collected by a number of small pumps and forced through platinum nozzles into a bath of sulphuric acid and sodium sulphate. Each of these platinum nozzles is perforated with a number of holes corresponding to the number of filaments required. As the viscose comes in contact with the acid solution, it is quickly coagulated and converted into fine threads and drawn into a revolving spinning box, where the correct amount of twist is given the threads. The yarn is then reeled, leased and thoroughly washed, bleached, dried, and is ready for the subsequent processes of manufacture.

The thread is thus different to any other, and is composed of filaments of indefinite length, running practically parallel and only twisted to the

By J. Kenyon, before Preston and District Mill Managers' Association, England.

extent of practically $2\frac{1}{2}$ turns per inch. These filaments vary in size from round about $2\frac{1}{2}$ den. to 8 den., equal in cotton from 2000's. to 660's. The number of filaments in the thread varies from 14 to 368, according to size and requirements; this helps to keep the thread very even, and being so lightly twisted retains the whole of its brilliance, and gives it good covering qualities.

Storage.

The best place to store viscose is a warm, dry shed, and under no circumstances should a cold, damp cellar be used for this purpose or trouble will ensue at the later processes. A regular temperature of about 65 deg. is very suitable.

Principle of Handling.

Viscose requires gentle handling owing to the very fine filaments with so little twist, and friction must be avoided at all processes or broken filaments will result, causing trouble in weaving. The yarn must not be stretched, as there is very little elasticity after a given point, and the yarn loses its particular sheen and takes on a rather leaden appearance. If the yarn has to be used as weft, the result would be tight picks, shiners; and if used for warp, the cloth would have a slightly streaked appearance.

Winding.

The yarn is received in hank, each of which is leased in four places to help the winder to keep it straight. These hanks are placed on the swifts and opened out before the lease bands are broken. The outer end is tied to one of the bands, and if the hank is placed correctly on the swift it ought to run the full length without breaking or sticking at any point.

The swifts are so light and evenly balanced that, if the hank is not centered correctly, a slack bobbin would be made, and neither quality nor quantity could be given at the next process.

The winding machine is a very simple one, the only working parts being:—A revolving shaft (with the same number of driving pulleys as there are bobbins on the machine) and a traverse bar. The bobbins are placed on spindles, one end of which contains a small pulley placed over

the driving pulley on the shaft. A friction drive is thus obtained, but the friction is between the two pulleys and not in the yarn in any way. Tension is added by placing a weight on the swift according to the thickness of the thread being wound, but the main object should always be to find with the smallest weight possible, and the finished bobbin should not be hard nor yet too soft to allow the yarn to easily unwind. If for any reason the yarn does not come freely from the bobbin, but is held fast on the hank, the friction is so slight the yarn is not harmed in any way. The bobbins used are not so large or so heavy as the ordinary cotton bobbin, and will hold about 10,000 yards. These bobbins are used not on account of winding, but so that the drag will not be so severe in the later processes. The traverse is by horizontal bar carrying porcelain guides, which should be examined periodically and renewed if cut or grooved, as no tension or drag should be placed on the yarn at any time.

Pirn Winding.

In pirn winding it is usual to prin from the winder's bobbin, as by this method we are certain to obtain a clear run from one end of the bobbin to the other, whereas if pirning was done from hank, the least obstruction would cause the yarn to break or stretch, owing to the drive being more positive. It is advisable in this machine that all points of contact with the yarn should be by runner or small grooved pulley, as these revolve and do not add friction. All wearing parts must be kept in good condition to get the best results, and only sufficient weights used to make a firm bobbin or pirn and unwind in the shuttle without sloving off. A Schweiter or Leosona type of machine is used, and about $1\frac{1}{2}$ spindles per loom is required.

Warping.

In warping, a sectional machine is used, and the sections are built up one after the other until the required number of ends are on the reel. The yarn is then wound on to a beam and comes off in one complete run together at a later process, with the possible variation of weighting, which in artificial silk would be

fatal. In this, as in all processes, the greatest care is necessary. The principal object is to have a good weaver's beam, and our experience is that a sectional warping machine is the best way of attaining that object. The creel used is of the N type, the angle of which it not quite so acute as in the ordinary cotton creel. Creel pegs are screwed into the wood upright, and a button placed on these pegs so that only friction is between the end of the bobbin and the button. The ends are drawn through a leasing reed, and then through a second reed to give the desired width. Each section has a slight traverse, and the yarn builds upon the edge of the previous section. When beaming, the yarn is carried over a wood roller set on ball bearings to give as little friction as possible.

Wire Healds.

From our experience, we find wire healds to be a great improvement over the old cotton heald. In the latter, the knot on the top of the eye is responsible for most of the trouble by breaking the fibres when crossing, will glide without friction in any way. The heald must be free to move easily on the frame, and not held tight or rubbing will take place. For cloths which have a large number of ends a 32's gauge wire is most suitable.

Flexible Reeds.

By flexible reeds I mean reeds made from wire that is rather more flexible than usual. These are made rather deeper than ordinary reeds, and from wire that is a few gauge finer than is generally used for a reed of the same counts, but rather broader to give the necessary strength. Having a finer wire allows the maximum space between each dent, but the whole wire must be exceedingly well polished previous to the reed being made, and after making must be well finished off. Wire healds knitted top and bottom are very useful for standard lines.

Drawing in or Twisting.

The drawing-in is done in exactly the same way as cotton, where wire healds are used—that is, it is rather more difficult to use a double-hook where a large number of shafts are used and the ends are drawn in singly. By this, I refer to our own method, and I don't suggest that a double-hook is impossible. All healds
(Continued on Page 32)

Developments in The Manufacture Of Colored Cotton Goods

It is not my intention to search history for the purpose of finding the period or cause of the insertion of threads of color into a fabric, but rather to review the changes that have taken place within my own practical acquaintance with the trade.

I shall, therefore, have to take the state of things somewhat over 40 years ago, and I will first review the preparation of the warp which in those days, after winding from bank, was mainly prepared in the vertical warping mill, and then run on to the weaver's beam on what is known as a press beaming frame. Long chain beaming was used to some extent at that time, but it only came under my observation for the production of self-colored fabrics, commonly known as Florentines, and somewhat later was used for producing striped warps, not because of its merits, but simply to make use of what was considered a makeshift method, because the machinery was installed and available. From this period the first development was the introduction of the sectional warping machine, and several reasons were given for its inception, viz., the arbitrary action of the strongly organized operatives, the frequency of fast or twisted places in the mill warps, and the production of a more perfect warp with cheap female labor.

It must be said that there were skilled mill warpers who exercised care in their work, and produced warps of which there could be no complaint, but others would, for their own immediate gain, introduce methods which in the nature of things tended to produce inferior work, and the constant accumulation of faults often begins the movement of the inventive genius of the sufferer.

Ashworth's sectional warping frame had a long straight movable creel similar to one-half of the present "V" creel of the beam warper. The threads, which were creeled to pattern, were threaded through holes in porcelain strips fixed together like a comb board (but placed vertically) and then passed singly through a leased reed, and over the flat side of a half-moon, which was tilted at the angle required to produce a given number of threads per inch, or, in other words, to bring the whole of the threads to the width of the section.

The warp had the merits of having threads placed exactly in position side by side, and was produced cheaply, but it had the defect of soft places formed on the beam where the $\frac{1}{2}$ inch thick flange divided the sections, and in the variation in diameter of sections, which depended on the constant adjustment of the tension by the operative, who was required to note the relative ratio of the revolutions per cut length by first pegging a wheel for the first section and then endeavoring to make the following section to coincide with the first. The dividing flanges were large in diameter and riveted to a cast iron centre, which would slide on a centre shaft to any

Address by W. B. Crompton before Preston and District Mill Managers' Association, England.

position required and be secured by a set screw. The pattern was divided up into sections, the centre ones being usually of equal number of patterns, and the other sections were generally less or greater in width, according to the threads of pattern and selvedge required to complete the whole warp. To enable the flanges to be set correctly gauges were usually employed. These were held between the flanges while they were revolving. The flanges were inclined to buckle, and this added to the difficulty of correct setting, and also in the building up of the edges of each section. These machines were usually erected in line, and a beaming machine fixed on wheels and rails was brought before the completed warps as they required running off to the weaver's beam. These defects brought forth the present form of frame with its wood block or base and the removable flange, so that the sections could be placed together to be run off without intervening flanges or spaces, and then later the automatic regulation of the presser to produce regularity in size of section. The density of this yarn on the section is regulated by a "V" reed, which may be opened out or closed in for this purpose. The threads are passed through the "V" reed in groups of about 6 or 8 threads, the only retrograde arrangement of the machine and the cause of the greatest trouble, for if the "V" reed gets the least bit out of the vertical there is constant twisting of the groups, and a more difficult task to pick up the threads quite straight when any are broken at the loom.

I have, in one case, seen the original straight creel with the half-moon guide adopted to the new headstock, and this was a more satisfactory method from the point of view of the perfect warp, but the process was only applicable to those warps where all the threads happened to be of equal counts. This was quite usual at the time, but the method of mixing counts in the same warp has now become quite a common practice, and, as it is necessary to spread the yarn pretty evenly across the beam, the division of the threads into groups is more convenient for this purpose, as six ends of 30's may be taken as an equal group to eight ends of 40's, or if in a cordial zenhyr shirting, with six ends of 30's in a group, we may equalize this with a 10's or a 20's cord and three ends of 30's. These processes were based on the yarn being dyed and sized in the hank form, and wound on to warpers bobbins on the drum frame, which is still in vogue, but the developments in the dyeing industry have always had counterpart in the manufacturing processes. Dyeing in the warp was developing, and I am afraid manufacturers had a keener eye to a slight saving in the cost of warp production than in the greater gain of increased loom production

obtained by the introduction of more perfect warps.

Cloth patterns at this time were very simple, and a greater number of even patterns, such as 8 white, 8 blue or 12 white, 12 blue were produced, and many warps of this type were beamed direct from warps bleached and dyed and sized in the ball form by simply placing half-beers of the white and color in alternate dents of a coarse wraith, and making up the pattern from the two leases in the drawing frame, in which case a considerable amount of crossing would generally result, and the group of threads in each half-beer, stuck together in varying degrees by the dyeing and sizing, were left to be opened out at the shedding. A great improvement on this method was obtained by some firms with the introduction of a much finer wraith and splitting up the half-beers in the wraith, and by dividing rods, which were drawn through the warps as it proceeded on the beam, and also carefully picking up the pattern at the end of the warps.

With the further development in warp dyeing, together with the introduction of more intricate colored stripes in cloth, the process of Yorkshire dressing was increased. With skilled workmanship, very satisfactory warps were produced, but the process was comparatively expensive, and the warps not always perfectly foolproof for the weavers.

The automatic loom required a perfect warp for satisfactory working, and, for a time, the only one considered suitable was a slashed warp, a warp in which the weaver can pick up a thread from the beam with some assurance that it will continue in a straight course. This assurance cannot be obtained after the zig-zag winding of the threads on the beam by the reeds in some of the warps prepared by Yorkshire dressing, or the twisted groups of threads of the beamed warp, or some of the section warps, and although the old-experienced weaver can handle these warps with comparative ease, there is no reason to be content with imperfections. What is necessary for automatic looms is helpful in the Lancashire loom. The introduction of more intricate weaves and finer goods, together with a keener eye to the urgency of keeping up the loom production, demands the perfect warp in every case, and where it was stated the weaver gets everyone's bad work, she now more generally gets the bad taken out of her work by someone preceding her.

Some manufacturers tried the horizontal warping mill.

Latterly, there has been a considerable return to the process of long chain beaming and dry slashing. Every end can be easily seen and all broken yarn made good before the dry taner puts the warps together to the exact patterns. There is no excuse for mistakes of pattern

because everything is previously counted up and should finish up correctly after slaying, and the threads are laid perfectly parallel and to exact pattern on the beam.

Considerable aid can be given to the weaving of cloths with loosely-bound stripes by more thinly slaying (or crowding) those threads, and also applying more tension on the back beams, especially if the main part of the yarn is not built up too tightly.

One of the advantages reasonably claimed for long chain beaming and dry taping methods of warp production is the absence of bad stock, as it is possible to order and use up entirely the exact amount required for an order. In order to ensure these results efficiently with small orders, the dry-tape beaming machine has been introduced. The pattern is slayed in for every warp if necessary, or if we require a change of color only, such a change is effected. All the process may be carried out by female labor, except the necessary beam lifting, for which provision is usually made. By a careful analysis of the designs, a schedule of the colors can be prepared which may be so grouped in ends and length that a maximum of long lengths can be supplied to the chain beamers, but several of these will require to be cut up into warp lengths in order that they may be used up economically in the beaming.

The beams with warp lengths are expected to supply any odd number of ends to make up the quantity required for the pattern, and this odd number is beamed off and the remainder is used for another design. If a chain is carefully run on to a beam without moving the guiding wraith, the threads will split off without trouble, with, perhaps, the loss of one or two threads every split, but in order to avoid so small a loss a conical flange of 45 deg. is sometimes employed, and the yarn is caused to travel sideways at a speed equal to its rise when it should unwind in the same ratio in an equally satisfactory manner. The splitting and grouping arrangement shown will more clearly convey the meaning of the arrangement mentioned. The further development in dyeing, with the introduction of fast to bleaching colors, has made a further development of great importance to the cotton trade, and in many cases where manufacturers were confined solely to the production of grey goods, you will find they are producers of colored stripes, especially in such cloths as shirtings, where the proportion of color is anything below 20 per cent to 25 per cent of the whole.

The fact that designs are usually run in various colorings makes it more suited to slashing by providing a long run of the grey yarn with a change of color, which may be prepared on the beam warping machine by tying one color to another to provide a straight run through at the slasher, or in some cases a two-fold yarn is used, either from an

additional beam at the loom or may be run on with the grey yarn in front of the slasher. With cylinder drying, slashing should be kept moving, but with hot-air drying it is possible to stop the machine for laying in to pattern in the front wraith, and therefore the arrangements are varied to suit the conditions.

There is one method of warp production which should be mentioned in the modern methods, though it is not extensively used in this country except for self-colored warps, and particularly for the black warps that are used for alpaca and lining cloths. This method is to dye the warp on the beam and then size it in the slashing machine.

This method is also used on the Continent for supplying colors for the dry-tape methods of preparation, and is available where standard lengths of warps are made. When the warp is slashing, the beam which is provided with one conical flange is moved gradually as the yarn is wound on, so that the beam resembles a huge pirn, and this method is adopted to allow any required number of threads to be split off to make up any pattern it is desired to produce on the dry-tape machine. The form of beam may be more safely stored than a straight-wound beam from which some of the threads have been taken, as in this case the threads that are not supported by a flange are very easily displaced.

In the drawing or gaiting room some developments have taken place; dobbies were quickly introduced on looms weaving colored goods. More healds were used and the drafting was, of course, made more intricate. Spaced healds were often used, but the expense of providing these was often avoided by using openly-knit healds and leaving them empty where not required. Dropped healds are always a stumbling block to many weavers, and sliding healds of cotton or wire are often employed instead. Mechanical reaching is a successful development of late years, but mechanical drawing is not yet so simple (nor so capable of the more intricate work) so that hand drawing is not likely to be superseded for the present.

Spinners' cops of natural color are often used as weft in colored stripes and checks of common quality, but more frequently bleached white and colors are required. These were for a time all prepared by winding from hank to pirn on the cup winding frame, and this method is used to a great extent at the present time, and the glazing and cutting of the yarn by friction, which was often a source of considerable trouble, with the old dirty and harsh dyes, is greatly avoided by the cleaner dyes and proper lubrication of the yarn. The disc and cone frames which were introduced to avoid the glazing and cutting of the yarn were only partially successful, and the old cup still survives.

When the dyeing of cops became a practical proposition by the introduction of soluble colors, the winding was obviated for many cheap fabrics (chiefly those intended for foreign use) and the necessity for winding frames greatly reduced.

Since indigo blue has been dyed successfully in the cop, there has been a wider field for their use in the more expensive cloths, but for brilliance of color and reliability of dye there has been nothing to touch hank-dyed yarn for a long time, and, therefore, winding has been necessary for the better class goods, except that the perfection in cop bleaching has enabled many of the finer qualities of zephyr shirting and similar goods to be produced with this weft and save winding, although it is more subject to slubbing and leaving lumps and irregular places in the cloth, and, therefore, for the more perfect results we have to fall back on wound hank yarn.

Weft yarn is also used in the form of long chains of 378 to 500 ends, which are bleached or dyed to be wound on Holts' vertical spindle machine. This has the advantage that the yarn is built up without frictional contact, and a good spindle speed was obtained with the stronger yarns. More even shades are also claimed. Rewinding of cops (especially of coarser counts) is often introduced to obtain increased loom production, more perfect cloth and to save waste.

My first recollection of colored fabrics were those produced in tappet looms, plain cloths 2x1 twill (Repattas), 3x1 (Florentines and Ticks), 2x2 twill (Harvards) and ordinary five-shaft sateens. In plain cloths we had zephyrs and oxfords, the former used for cotton dresses, and the latter often made of superior quality cotton upon which a high lustre was produced in the finished cloth and used for gentlemen's shirts. Regattas were frequently of even pattern, white and colors in such stripes as 6x6, 8x8, 10x10, and 12x12, and were used for working dresses, or might be 18 color, two white or similar designs heavy in color and be used for boys' suitings and shirts. The designs were generally sombre in type and continuous in season, fashionable year after year.

About this time technical classes were formed in some localities, and as they progressed further developments in design and weave were noticeable. For what was known as the home trade, we were confined to the colors of fair washing qualities, such as indigo blues, indigo skies, turkey or alizarine red, chrome greens, cutch browns and fawns and, perhaps, a few other shades which were used in small quantities, and even in these shades, especially indigo blues and skies, due allowance had to be made in depth of shade to allow for weaving down and reduction in finishing. One can easily understand the limitations of the colored stripes designer of those days compared with those of today, who can rely on the most delicate shades retaining their depth and brilliance even after bleaching or the most severe finishing.

You may now use various tones of the same color and rely on some satisfactory permanence, but if these had been attempted in the earlier days, they possibly might survive a careful finish, but would probably soon succumb to the action of the wash tub.

Slack times are generally those

during which greater progress is made in style and design, because of the constant demand for something new to attract a market.

Fine hair lines in zephyr fabrics and oxford shirting and also bold and relief effects gradually brought forth the method of using finer or coarser counts of superior quality or of folded yarn to obtain the desired results.

In order to obtain a bold stripe on a plain ground, other means, such as 3x1 twill, would be used with the natural sequence of coarser yarn to give cover or the cramming of the reed to obtain a finer and richer appearance in the bold stripe.

Single end stripes in a double-ended or oxford cloth, and a broken draft with two ends of color in a harvard shirting, were methods introduced to produce the fine lines which became a feature of the improved designs.

The introduction of the scroll tappet was opportune in providing means to produce the stitch effects in various cloths such as 2x2, 4x4 or 5x5, according to the 2, 4 or 5 picks to the round of the tappets in conjunction with which they were used.

The introduction of the Keighley type of dobby, by which up to 16 heald shafts could be dealt with provided further scope for the designers or the students of cloth structure, and in place of the ordinary stripe figures of various types created a further means of ornamentation to the fabrics produced in the power loom. These were for a time confined chiefly to stripes such as an eight-end stripe in a harvard shirting, or a similar stripe on a zephyr shirting, some of the dobby shafts being reserved for the ground weave. The removal of the limit to picks to the round also enabled cross stripes to be produced on the ground weave, and square designs in warp and weft soon formed another phase in the ornamentation of fabrics. The various possibilities of a dobby loom were gradually grasped and taken advantage of in new features introduced into the type of ornamentation, and when the required possibilities were not present they were often supplied in such ways as the methods of working the dobby and checking in unison, and from one source the regulating of the take-up to produce crammed picks, or the introduction of an additional barrel for border weaving or periodical change of pattern. Mercerized cotton provided another means whereby variety was possible, either in more brilliant stripes or the production of a smooth and silky fabric when the yarn was used as the main feature of the ground weave.

Crimped stripes, first by mechanical means in weaving and then by chemical or caustic soda methods during finishing, have had their vogue, and, further, we have the methods of weave which induce threads out of the straight line of warp and weft either by the weave, type of reed or latterly by the use of highly twisted crepe yarns, and where, in grey goods, the introduction of such yarns in ordinary and reverse produce shadow stripes and crepes. Similar yarns produce in colored goods some of the flimsy

fabrics of the present-day wear.

The further advance in dyeing, which has enabled the production of colors which, when woven into fabrics, may be mercerized and piece bleached in the cloth, has brought forth fabrics which, for appearance and handle, may be considered a very great advancement in cotton goods.

Our latest recruit in the form of artificial silk is now forming a prominent feature in the production of design, and its enlivening effects are well known to cotton students, who seldom fail to use it in their examination designs, and the fine effects that may be produced by its appropriate use, and also by a judicious use of viscose and Celanese silk for cross dyeing are a further step to the production of ornamentation of colored cotton goods of the present day.

We have not yet attained finality in the production of colored fabrics, and every achievement only shows further possibilities. There is no royal road or text-book method of producing new ideas and types of fabrics, but to be successful the designer must have a full knowledge of the possibilities of his machinery, of what has been achieved in the past, of what he is aiming at, and untiring energy in his efforts to obtain satisfaction, and it is only at this point when he will find that one result leads on to another in a way that, probably, a series of useful objects are attained.

Numerous lantern slides were used to show the details of various types of machines, and various designs of colored cloths and the arrangement of chains in the dry-tape beaming process.

Arabian Markets.

The outlook for American grey sheetings is very dark. Japan has the Arabian and East African markets well in hand, having obtained these outlets by a campaign of underselling. Now that Japan is in, it will be exceedingly difficult to compete, even though the difference in price is materially reduced. This has in fact been the case. Earlier in the year there was a difference of between 40 to 60 rupees (Rupee equals about \$0.36 at current exchange) per bale between Japanese and American sheetings. The Japanese prices gradually increased, once the markets were obtained, and after British and American sheetings were forced out and nearly forgotten, so that now the difference in price is only about 20 rupees per standard bale of 750 pounds. The Japanese quality is obviously inferior, as regards finish and evenness of thread. (Vice Consul — Lodger, Park, Aden).

Chinese Conditions.

Shanghai business conditions show no change. Transactions have been restricted to necessary business. Collections are poor, there is little demand for the interior. One concern is to try piece-goods auctions this week as an opening wedge for complete resumption of the auctions. (Assistant Commercial Attache A. H. Evans, Peking).

Remarks On the Dyeing of Rayon

THE production of rayon in the United States is now understood to be equal to the consumption of mulberry—that is, true—silk. Nevertheless, it is still a new fiber, and its behavior towards dyestuffs is yet an imperfectly explored field.

By rayon, is meant any variety of artificial silk based on vegetable material. There are four principal varieties—viscose, cuprammonium, nitro and cellulose-acetate silks. They are all products made from some kind of cellulose, particularly cotton. The dyeing of these classes of rayon is not so simple as perhaps many suppose. While all are vegetable fibers and consequently more or less alike, still the chemical transformation which have been accomplished in their production have given us things which react differently with dyestuffs. There are some resemblance in the behavior of the varieties of rayon and certain differences. The dyer must have both the similarities and the dissimilarities in mind if he would be successful.

The Direct Cotton Dyes.

One principal rule may be laid down at once. Three of the four kinds of rayon—viscose, nitro and cuprammonium fibers—may all be dyed with Direct Cotton Colors. In general, the degree of fastness which results is fairly satisfactory.

These classes of rayon may be dyed in the form of hanks of yarn. This is perhaps the chief custom. However, a certain proportion of these types of rayon is dyed in the form of knitted fabrics, the winch machine being employed a good deal in this connection, and in the form of piece-goods "in combination with cotton on the jigger."

It is said that attempts have been made to dye rayon on the beam and in the form of cops or cheeses in circulating machines. But, it appears the results have scarcely been satisfactory.

Preparation of the Bath.

The reader will, presumably, be pleased to have set before him an account of a suitable procedure in the preparation of the dye bath. Let us keep before us that, for the present, we have to do with viscose, nitro and cuprammonium rayons.

We begin by drawing the necessary water into the tank and adding the color solution made from a Direct Cotton Dyestuff. The percentage here will vary with the dye itself.

Glauber's salt is to be added in an amount varying in the range 5-10 per cent of the dry weight of the rayon.

Soap in an amount equal to 5 per cent of the weight of the fiber is also to be added.

When dye, Glauber's salt and soap have all been added, we may enter the rayon, paying attention, however, to the temperature. If we wish to produce a light shade, we may proceed thus: We use a temperature of 100°-120° F. But if we wish medium or dark shades, we employ a temperature of 140°-176° F.

The dyeing is prosecuted for, say, forty-five or sixty minutes.

L. G. Laurie refers to C. M. Whitaker as advising that the temperature at the time of entering the rayon yarn and through the period of dyeing should be higher than any of the temperature named.

He recommends 90°C. (190°F.), and thinks that as a result the dyeing may be expected to be more even.

Laurie says: "In general practice, however, it is customary to work at a lower temperature, although the silk (rayon) itself is not injured when dyed just under the boil, and on occasion it is necessary actually to boil the goods, as for instance, when dyeing cotton and artificial silk hosiery in order to obtain thorough penetration."

When light shades are in question, the amount of salt is to be reduced or even brought down to zero.

Unevenness Peculiar to Rayon Dyeing.

Rayon may be expected to show unevenness of the usual character, and the viscose variety may also be

counted upon to disclose something more or less peculiar to itself in this connection. The ordinary examples of unevenness can be avoided by careful working. I quote from Laurie as to the new type of unevenness: "It appears to be impossible to avoid a certain amount of variation taking place during the manufacture of viscose silk, and this gives rise to 'lots,' some of which dye a slightly darker or lighter color than the remainder. This is seen in the finished dyeing as whole hanks of a lighter or darker shade, and not as unevenness in the hanks themselves. This fault is far more noticeable in the cheaper imported (Mr. Laurie means, presumably, imported into Great Britain) varieties of viscose silk, and the better the quality the less noticeable is the defect."

He expresses the opinion that experience has shown that these defects may be minimized to a negligible amount, provided the dyestuffs are suitably selected and provided the rayon is of high grade.

The Basic Dyestuffs.

Deep brilliant shades call for the use, occasionally, of Basic Dyes, for the reason, apparently, that these shades cannot be secured with the same degree of brilliance when other classes of dyestuffs are used.

The usual procedure in England appears to include a mordanting

(Continued on Page 34)

You Might as Well Blindfold Your Cost Accountant —

The guess work your cost clerk is obliged to resort to in making his bids (when human count is employed in production costs), is no more than a "blind stab" with a margin for production uncertainties thrown in.

Know your production costs to the very fraction of a cent, and base your estimate on known figures.

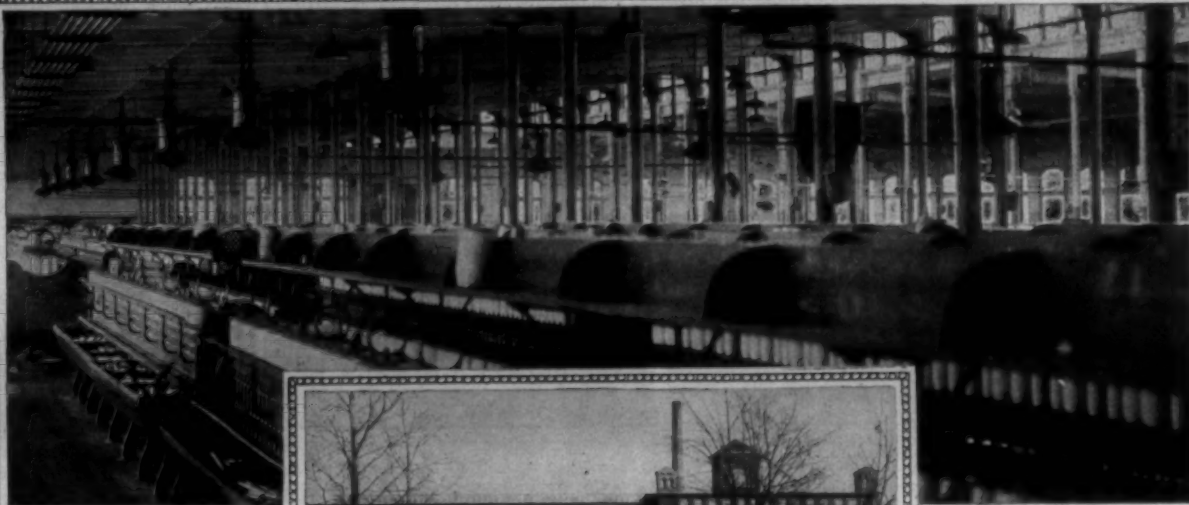
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When you made us a proposition in early 1921 to equip our mill with your system of high-duty humidifier, we could not help but feel that some of the claims you made for the system were rather greater than we could hope to realize. However, after using this system for better than two years it is our frank belief that you were very conservative in your claims as to what this system would accomplish for us. We have endeavored to operate the system in accordance with your directions and have been very much pleased with the operation and results.

Another favorable feature of your service which we think mills generally appreciate, is the system of inspections which you make. These inspections have been very helpful to us in that you have assisted us materially in the proper operation of the system thereby giving us maximum beneficial results.

Very truly,

The American Textile Company.

By  President

M:C



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Boston

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Right Again



The Truth About Ventilation

(Bulletin of Life Extension Institute.)

NOW is the time when problems of ventilation deeply concern us. Now is the time when the fresh air fiend and the man with draft-phobia clash. Something is, of course, to be said on both sides.

Nobody can question the value of fresh air, especially in the treatment of tuberculosis. But the wonderful results attained in the fresh air treatment of tuberculosis have led to misunderstandings as to the mechanism of the beneficial influence of good ventilation. It is not possible to say exactly how fresh air treatment works in tuberculosis. It is natural for the public to suppose that it is the effect of oxygen on the lungs, but there is no proof that this is a factor in the case. More probably the fresh air treatment acts through the effect of sunlight and the stimulating influence of fresh moving air over the surface of the body. In the fresh air treatment what we now know to be the most injurious effects of poor ventilation are removed, namely, excessive heat and humidity and lack of motion in the air.

There is one common ground upon which the fresh air fiend and the man who feels drafts can meet and that is in thorough ventilation of sleeping rooms when there is no

question of suffering from drafts, or, sleeping out-of-doors by means of a window-tent, sleeping porch or other similar devices. This will insure at least eight hours of ideal air conditions except in regions where the air is badly polluted with smoke or fumes.

For the average individual in an ordinary environment ventilation resolves itself into the problem of temperature and air movement. Air movement can often be attained by the adjustment of window-boards or other simple devices for admitting a flow of outdoor air and an outlet for used air. But the old-time notions as to the amount of outdoor air required for healthful ventilation should be abandoned. Many of the laws on the statute books relating to ventilation are out-of-date and there might well be substituted statutes requiring proper regulation of temperature and some device for keeping the air moving. In some large establishments elaborate engineering devices have been installed through which the air is washed and filtered and supplied at a certain temperature to the offices and working rooms.

Reasonably good ventilation conditions can be obtained by simpler means if some interest is taken in the matter. This is not the place to discuss the intricate problems relating to humidity and the em-

ployment of the kata thermometer. An ordinary thermometer will be a good practical guide as to the heat regulation of apartments and working places. If there is some provision for the steady flow of fresh outdoor air and the temperature is kept at 70 degrees or less, as registered by the ordinary thermometer, there is little risk of poor ventilation. There is never any lack of oxygen under ordinary working conditions. **There is never any injurious excess of carbon dioxide.**

In rooms or apartments where gas heaters are employed and no flue adjusted for carrying off the products of combustion, there may be contamination by carbon monoxide—a very dangerous poison. The gas heaters that are employed in bathrooms or small rooms must be watched very carefully and used for only short periods of time with thorough ventilation assured that will carry off the products of combustion.

Ventilation concerns more particularly the skin and heat regulation of the body than it does the lungs; that is, conditions seldom arise where more than an adequate supply of oxygen is not available for respiration. Conditions frequently arise where the heat regulation of the body is disturbed by the condition of the surrounding atmosphere and the actual practical lines

more needed in the winter time than in the summer time when the windows can be widely opened and the of correction include primarily these factors. Electric fans may be much circulation of air from the outside safely assured.

Some go to extremes in urging low temperature for working rooms and offices. Where people are very vigorous and active at their work a temperature of 65 degrees may be well borne, but in any ordinary group of office workers there will be found a sufficient number of people with low blood pressure and anemia who will feel uncomfortable in a temperature lower than 70 degrees. There is no reason why any one should suffer actual chilling although at first they may suffer some discomfort at a temperature of 70 degrees. People with pampered skins who have been accustomed to living in an overheated atmosphere may at first complain even of a temperature of 70 degrees, but they soon become adjusted to it.

It is true that children thrive wonderfully in fresh-air schools where the temperature is that of the outdoor air in the winter time, but such children are specially clothed and safeguarded in a way that is not feasible, at least at the present time, among office or factory workers.

The question of heavy odors in
(Continued on Page 33)

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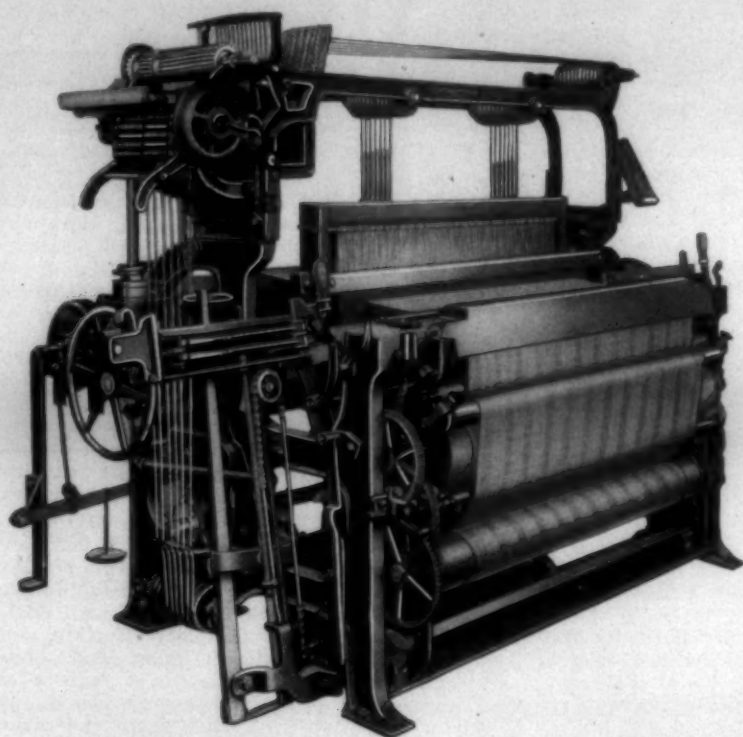
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Artificial Silk Weaving

DURING the past few years there has been an increasing demand for fabrics of which artificial silk forms a part. This is due in no small degree to the fact that its attractive lustre, combined with the undoubtedly improved wearing and washing qualities of the yarns in recent years, has broken down the prejudice which it had to meet at the outset. The efforts made by the producers to render the yarn more perfect and more widely applicable have induced many manufacturers to adopt it as one of their staple articles. These manufacturers have not only devoted themselves to the production of a wide range of cloths in which artificial silk is the chief attraction or ornament, but have devoted considerable attention to finding the best means of manipulating it. This has resulted in an increased demand by both the home and shipping markets for goods of this description. Probably the late war interfered to some extent with the progress in artificial silk manufacture, but now that things are working normally, a great expansion in the use of this material is taking place.

An indication of the methods of manipulation which experience has proved to be useful and reliable, will be of service at this time. For weaving purposes artificial silk may be used in the form of either deft or

warp or both. The former method presents fewer difficulties than the later, and is by far the one most frequently used. The best results are obtained with artificial silk weft when it is wound on to specially prepared tubes about $4\frac{1}{4}$ inches in length and $\frac{3}{4}$ inch in diameter, this being now accepted as the universal size, made from unpolished paper free from roughness and with indented rings at intervals to prevent the yarn from slipping off. The winding should be very firm, and if possible, knotless.

If knots have to be made they should be run to the outside of the slope. When knots occur at the base, or part of the way down the slope, they are a source of continual trouble, as the loosely twisted fibres (twist would diminish the lustre) of the yarn catch on the knot as the thread is drawn away, and either causes the weft pick to break or causes a number of tight picks in the cloth. These tight picks show very distinctly in cloths woven with all artificial silk weft and appear to be of different counts and lustre to the remaining portion, giving a frayed and uneven character to the cloth. When knots do occur in the yarn, the best thing the weaver can do when the weft breaks upon it is to unravel the thread until the knot is drawn off. If the cloth is a very expensive one, and one in

which slack and tight packs are obtainable, the winder should have instructions to grade the tubes into knotless and other grades according to the number of knots which each contain. The type of knot, which holds best for artificial silk, is the "tension" knot.

When a suitable cop or tube of yarn has been secured, the loom shuttle should be specially prepared to receive it. When artificial silk is woven in an ordinary shuttle, should be specially prepared to receive it. When artificial silk is woven in an ordinary shuttle, various faults arise which are solely due to the smooth, springy and slippery character of the material. This allows the yarn to unravel or unwind to freely, thereby causing curls, slack jicks, fringed selvages, stoppages of the loom, and dirty places in the weft.

The ordinary methods of placing a brush of worsted yarn in the eye of the shuttle to prevent weft curling is not sufficiently effective, and the method of fixing stiff fibre brushes in the shuttle so as to press against the bottom of the spool—as is often done when weaving polished cotton weft—it too harsh for the delicate fibres which form the artificial silk yarn, and causes a rough inferior thread.

Experience has shown that the best results are obtained by some

arrangement which will exert a slight and even pressure upon every coil of yarn as it is unwound from the tube, so that it will never have the opportunity to fly and become wild, or slip. One method is to fix the end of an elastic tape about $\frac{1}{4}$ inch wide into the side of the shuttle a little behind the base of the tube, and the other end into the bottom of the shuttle near the pot-eye, and draw it tight enough to press against the yarn for the whole length of the tube. This is a very effective method, and answers admirably until the elastic becomes either frayed or slack, when it must be renewed.

Another and preferable method is to place a piece of velvet or rabbit skin along each side of the shuttle in such a way that the tube of yarn lies easily upon it and adjusts the tension on the weft. This velvet or rabbit skin, bed should extend from the shuttle eye to the base of tube, and when nicely inserted, and properly fixed, is both effective and enduring, as the tension can easily be regulated by raising or lowering the shuttle peg. It gives a perfectly even drag, prevents the yarn from flying forward, and presents no rough surface to fray the fibre. A simple and effective method of preventing the weft from flying up and touching the greasy spindle and of

(Continued on Page 34)

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Cotton Mill Processes and Calculations

By D. A. Tompkins.

Copy Revised for Third Edition.

(Continued From Last Week)

Frames are made longer or shorter, and with greater or fewer number of spindles as ordered.

Including space for alleys around frames, the floor space for spinning is considered to average about 1 square foot per spindle.

Floor space for 5,000 spindles would be about 5,000 square feet, or say 67 x 75 feet.

Most modern mills have their floors supported by heavy timbers running across the building 8 feet centre to centre. These timbers are supported by columns standing about 25 feet centre to centre. Hence there are rows of columns 8 feet apart one way by 25 feet the other. The width of the mill is some multiple of 25 feet, as 75, 100, 125, and the length is a multiple of 8 feet.

It is usual to place 4 lines of spinning frames lengthwise mill, in a 25 foot space. Allowing 1 foot for the thickness of columns, this would give 6 feet space for each frame: 3 feet for frame and 3 feet for alley. This is a fair allowance. It is feasible to place them nearer, even 2½ feet; but this is not desirable, unless there is some special object to be attained.

Mills are sometimes built with columns in rows 10 feet 8 inches centre to centre, with a view to placing frames crosswise. With round columns 8 inches in diameter, the clear space in a bay would be 10 feet. Two frames are placed in this space. As frames themselves occupy 6 feet, only 4 feet is left for 2 alleys, so they are only 2 feet wide opposite columns, and 2 feet 4 inches elsewhere. Some floor space is saved by this arrangement, and alleys are lighted better from the side windows; but a serious objection to it is the way columns obstruct the work of doffing and piecing. Every other alley with this arrangement, contains columns, while with the other arrangement, only every fourth alley contains columns. Another objection is the way in which frames must be driven. Shafting always runs lengthwise building, and hence guide pulleys or quarter turn belts must be resorted to for frames standing crosswise.

On account of more or less sag in floor beams, it is harder to keep crosswise frames leveled.

The weight of a spinning frame is about 300 per foot in length.

The net actual power for driving a spinning frame which is in perfect order, and having all bands of proper tension, is 100 to 120 spindles per horse power. But in actual practice, it is not safe to calculate over 70 spindles per horse power.

The character of spindle oil used, and the tightness with which spindle bands are tied on, and many other small details make variations in the amount of power consumed.

186. Fluted rolls are made single or double boss (sometimes called short or long boss, respectively) and the top rolls are solid or shell (loose boss) in the same way as for roving frames. Single or short boss spinning rolls are more generally used in the South.

187. Top rolls are made with bosses, and are reduced to a small diameter in the middle. The saddle rests on this small portion, across all three rolls. Stirrup passes between front

(Continued on Page 27)

HOUGHTON

About Crooks!

by Chas. E. Carpenter

BY "crooks" I don't mean crooked people so much as I mean crooked belting.

The above illustrations are photographic reproductions of pieces of belting taken from the scrap heap in the VIM Leather Shop, and are merely two of many and our belt men add to the collection almost daily.

These two belts were originally of the very best quality, but, because they were improperly installed and used, they rendered most expensive and unsatisfactory service.

Of course, the men who were responsible for the abuse of these belts did not intentionally ruin them; they merely knew no better and more than likely it was not their fault that they were ignorant of best belting practices, for in all probability their employer never took the trouble to teach them.

When belting is so abused the best quality lasts no longer than the poorest. My Company makes only one quality of leather belting—VIM—the best—and therefore I am particularly interested in stopping belt abuse,

for VIM must show better service or it cannot be sold, and it will not show better service if it is abused.

In order to have at all times before the employees of a mill, information on the care of belting, THE HOUGHTON RESEARCH STAFF has prepared an illustrated wall hanger, giving all of the fundamentals pertaining to the care of leather belting, and these CARE OF LEATHER BELT hangers are being distributed free of charge. You may have one for each room for the asking. If you have a number of these CARE OF LEATHER BELT hangers and they have become mill worn, you may replace them with new ones. If this information is worth having in the mill, it is worth having right.

I think it only honest, however, to warn you that the paper upon which these hangers are printed, contains about 10% water, which, according to Ben Nit, constitutes fraud and adulteration.

It must be a great relief to Ben to know that we do not charge for the hangers.

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AND ALL OVER THE WORLD

Oils and Leathers for the Textile Industry

Rayon Oiling Test

The oiling of rayon for use in knit goods has been the subject of tests conducted by the Associated Knit Underwear Manufacturers with the co-operation of the Bureau of Standards, and their report is made available to the trade, but the information is said to be equally applicable to rayon oiled for weaving. The report answers some of the questions asked by manufacturers regarding the uniformity of the oil penetration and evaporative qualities. It states:

"In knitting rayon yarns for underwear fabric it has been found necessary to treat the yarn with some kind of lubricant previous to knitting. This is done in order to prevent excessive needle breakage due to the stiff wiry nature of the rayon when untreated. As the evenness of the knitting and the resulting appearance of the fabric depend to some extent upon the uniformity of the application of the lubricant and also upon its ability to remain on the yarn without excessive evaporation users of rayon are interested in these qualities of treated rayon which they buy.

"The following is a report of tests made on two sample cones of 150 denier rayon which had been treated with a neatsfoot oil solution. Tests were made first to determine what percentage of oil was used, based on the weight of the yarn, and secondly to determine whether or not skeins taken from these two cones showed any appreciable loss of weight by evaporation of the oil

when exposed to a relative humidity of 65 per cent at 70 degrees fahrenheit.

Test No. 1.

"Percentage of oil based on weight of yarn as determined from sample skeins reeled from the outside of each cone.

Cone 1.		Cone 2.			
Skein 1.....	7.2%	Skein 2.....	6.3%		
Skein 2.....	6.3	Skein 2.....	6.6		
Skein 3.....	7.1	Skein 3.....	6.9		
Skein 4.....	7.0	Skein 4.....	5.1		
Skein 5.....	7.1	Skein 5.....	5.9		
Average.....		6.94%	Average.....	6.15%	

Test No. 2.

"Percentage of oil based on weight of yarn as determined from sample skeins reeled from approximately middle part of each cone.

Cone 1.		Cone 2.			
Skein 1.....	6.4%	Skein 1.....	7.4%		
Skein 2.....	6.4	Skein 2.....	7.4		
Skein 3.....	6.3	Skein 3.....	7.2		
Skein 4.....	6.3	Skein 4.....	7.5		
Skein 5.....	6.2	Skein 5.....	7.8		
Average.....		6.32%	Average.....	7.46%	

"These tests made on skeins taken from the outside of each cone and also from approximately the middle point of each show that the yarn has been fairly uniform treated with the oil. In the case of Cone 1 the results show a slight decrease in the per cent of oil in the inside layers of the cone, while in the case of Cone 2 a slight increase is shown. The variation from the average in

each test is not more than 1½ per cent.

"In testing the evaporative qualities of this lubricant skeins of 360 yards were reeled from each cone, first from the outside and then from the middle part of each cone. These were hung up in an atmosphere of 65 per cent relative humidity at 70 degrees fahrenheit and allowed to condition. After conditioning the skeins were then weighed and over a period of ten days and the weights noted.

"The difference in weights from the original conditional weights showed the amount of loss due to evaporation of the oil. Percentages of loss were then calculated and it was found that the weights did not vary more than plus or minus one-half of 1 per cent above or below the original conditioned weights. This would indicate that there is little loss by evaporation for this oil treatment for the period and conditions over which the tests extended."

Cotton Piece Goods Crisis in India.

Although piece goods imports at Karachi, India, during the first nine months of 1925 were greater than in the corresponding period of 1924 by 13,860 packages, the state of the market during the current year has been one of acute depression and the larger volume of import entries recorded represents only the fulfillment of commitments incurred some months earlier in anticipation of a demand which has not developed,

according to a report to the Department of Commerce from Consul E. V. Richardson, Karachi. The end of September was characterized by a slight improvement which, however, proved to be only temporary.

New Link-Belt Office.

The Link-Belt Company, of Chicago, announces the opening of a branch office in the First Wisconsin National Bank Building, Milwaukee, Wisconsin, with R. C. Kendall in charge.

This step has been taken as result of their constantly-growing volume of orders for Link-Belt Silent Chain Drives for the transmission of power.

Stein-Hall Salesmen Meet.

The annual convention of the salesmen and representatives of Stein, Hall & Co., Inc., was held December 16th to 19th inclusive at the offices of the company, 61 Broadway, New York. After a thorough discussion of business problems and plans, the men were guests of the company at a theatre party on the night of the 16th. Representatives were present from Boston, Providence, Troy, New York, Philadelphia, Charlotte, Greenville, Atlanta, and Detroit.

The New York offices of Stein, Hall & Co., Inc., will be removed on or about January 9th from 61 Broadway to the new Murray Hill Building, 265 Madison Ave., where the entire 21st floor will be occupied.



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Dyeing Vat Colors on Rayon

THE writer has read many articles on the dyeing and finishing of vat colors on rayon, but not one of the authors explained what actually happens to a batch of yarn, designated for fast dyeing, from the time it reaches the dyehouse in the natural state to the time it leaves completely finished and ready for winding. I shall therefore attempt to explain the procedure of the dyer in coloring a lot.

The commercial dyer must accept all kinds of rayon from the trade. He gets both the domestic and the imported, each having their peculiarities. Before attempting to dye the rayon, he himself or his assistant should examine the lot. He must watch out for end silk—i. e., skeins which have broken strands. He must examine it for fuzziness and tight tie-bands, also for an excess amount of oil. Some manufacturers of rayon do make a practice of putting some oil in their silks for certain trade requirements; but often this is overdone, causing the yarn to be dull and lifeless. Cotton tie-bands on the skeins do not slip as easily as silk bands, and therefore are best suited for vat dyeing.

All these points are very important in the manipulation of the dyeing process. The man in charge of the work must alter his methods of dyeing and handling in accordance with the condition of the yarns. The one object in dyeing fast colors on fine denier rayon is to obtain the required shade with the least number of operations. The more sets or immersions the lot is given, the more difficult it is going to be to wind. After all, the winding is what counts with the converter and weaver.

After the lot has been carefully gone over, it is placed upon rods made of bamboo. It is very important when dyeing rayon of 80, 100, or 150 denier, that the sticks on which the silk is placed be smooth and not cracked. Oftentimes a good lot of yarn is made fuzzy because of the carelessness of the dye-helpers in not selecting perfect sticks. The number of skeins to be put on a rod should be limited, so that there will be no overlapping. Failure to do this will produce shady and streaky results.

Selecting Dyestuff.

In selecting the dyestuff for the particular shade, the dyer must pay strict attention to the fastness requirements of his customer. If his goods are to go into embroidery yarns, the colors must be of very good fastness to light and washing. If he is doing work for the cotton goods trade, his colors must stand bleaching, light and severe washing. If the rayon is intended for woolen goods—to be used in pencil stripes, decorations or facing—the colors must be fast an acid cross dyeing at a very high temperature, and they must also be fast to light.

I shall explain this matter of dye selection more fully by discussing one of the requirements in detail—say fastness to bleach. Suppose we had a blue shade which seemed

Address by Floyd F. Warshaw before American Association of Textile Chemists and Colorists

to necessitate the use of the popular G. C. D. and R. S. brands. These colors are not fast to bleaching and therefore would not be satisfactory. However, we have two substitutes in Blue B. C. S. and Blue R. C. The former could take the place of the G. C. D., and the latter could supplant the R. S. These two colors are very fast to the normal bleach, and will stand up under the usual laundry test. This problem of fastness is a source of great worry to the dyer, and many times the inexperienced will take for granted the extreme fastness of a color to all elements and tests, just because it is a vat color.

If it is necessary for the dyer to use a combination of dyestuffs, he must choose those that will dye well together. They must be of such a nature that they will require about the same reducing and dyeing temperatures and also the same amount of alkali. Some vat colors reduce and dye best when cold; while others require to be warm—from 105 to 120 degrees F. Still others are best dyed at a temperature of from 140 to 160 deg. F.; and some will yield best results at 176 deg. and even 200 deg. F. The dyestuffs that are best dyed could require a minimum amount of caustic soda and also a quantity of Glaubers salt, the amount dependent on the depth of the shade. Even though good results are often obtained when using mixtures, it is advisable wherever possible to use straight colors.

The writer believes the trade can be educated to the standard shades in some cases. If, when making sample dyeings for his customer, the owner of the dyehouse will tell him that by accepting the shades submitted his yarn will wind and finish better, there is little doubt that the consumer will agree to accept them. A large amount of trouble would be avoided and better results obtained if both the dyer and his customer would get together on problems of this sort—especially in the sampling season, when new shades are being originated. This suggestion merely applies fast-dye work, where the process long and difficult.

Wetting Out.

Bearing these facts in mind, let us now go on to the wetting out and dyeing of the yarn. A suitable box, either of wood or monel metal, is filled with the required amount of water—about 250 gallons for 100 lbs. of rayon. About 1 lb. of sodium hydrosulphite and caustic soda is added to the bath to take care of the oxygen in the water, and also to put the stock in a semi-reduced state. This precaution greatly assists the dyer in obtaining level results and a uniform shade throughout the lot. A small amount of ordinary joiner's or carpenter's glue will serve to slow exhaustion and so give the dyestuff a chance to work more evenly on the fibre.

It is also quite necessary to include a quantity of monopole oil, which tends to soften the yarn, make it more pliable, and aid levelness. This should be a good sulphonated castor oil, which will not decompose in working. The water containing these four ingredients is now heated up to a temperature of about 105 to 110 deg. F. The rayon is given a thorough wetting out in this liquor and is then laid up preparatory to dyeing.

The dyestuff is now reduced in a separate container. This is filled with water heated to the necessary temperature for reduction; and the caustic, which has previously been dissolved, is poured in. The color is then added; and while stirring very gently, the hydrosulphite is slowly sieved in. This is allowed to stand until completely reduced. "Experience is the best teacher," in this particular branch of the operation. The dyestuff must be fully reduced to obtain consistent results; and therefore the ability to tell a reduced vat from one in perfect reduction is of the utmost importance.

The Dyeing Operation.

The method used for applying the dyestuff is dependent upon the depth and character of the shade to be made. If the so-called mode or pastels are to be dyed, the following procedure has proved very satisfactory: The temperature of the box is brought up to 100 deg. F., and a very small portion of the stock vat is added. This should be just enough to tint the yarn and form a ground or base, as the writer calls it. Experience shows that no matter to what extent a lot is worked, it will never even up properly if it has not been started right.

The rayon is then given three quick turns, and laid up. Another portion is added, about twice as much as the initial one. A small quantity of hydrosulphite added to the bath between each set serves to keep it in a satisfactorily reduced state. The lot is then given four turns, and again laid up. The temperature of the bath is raised to 110 deg. F., and half of the remaining color added. Four turns should be enough to exhaust that addition. On the last set, the balance of the color is added, and the temperature raised to the degree designated for the particular dyestuff being used. The batch is again put back and given five turns. A sample is made and the match checked back.

This method has given very good results; and, while the number of sets that the silk is given may cause the dyer some alarm, careful manipulation and an exhaustive study of conditions will overcome most of the troubles that may arise. When dyeing deeper shades, it is not necessary to work the yarn in this way. However, no matter how dark the shade is, it is always advisable to start the dyeing with a small amount of color. Then the remaind-

er can be added in two portions. In some cases where the dyestuff is naturally a very good leveler, all the color may be added after the initial tint is made.

If the dyeing is complete and no further addition of dyestuff is necessary, the yarn is either immediately given an oxidation in a bath containing bichromate of potash and acetic acid, or it is hung upon racks to oxidize naturally. The oxidation method employed is usually dependent on the color or colors used. The writer has found that some colors used. The writer has found that some colors or shades have to be aired first and then given an artificial oxidation. Unless this is done, streakiness will result and a shade not as bright as the standard will develop. Others can immediately be plunged into an oxidizing bath without altering or injuring the shade in any way.

After the yarn has been properly oxidized, it is given a fresh water, and the a hot soaping—say at a temperature of 140 to 145 deg. F. A small amount of monopole oil in the soap will tend to drive out the harshness which is bound to be imparted to the rayon by the caustic soda and hydrosulphite in the dye-bath. The soap is left in the silk and the lot headed up and transferred to the extractor. There it is whizzed well and then taken to the finishing department where it is shaken out and put on sticks. These are placed on a truck which is wheeled into the dryer. When completely free from moisture, the skeins are carefully examined for fuzziness, loose ends, ragged tie-bands, and the like. The bad skeins are culled out.

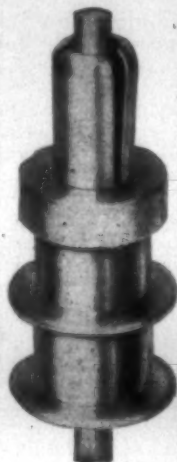
Often light and dark skeins appear in the batch. The first thing one naturally assumes is that the dyer was careless in handling the lot. This is not always the case. Though there has been a vast improvement made in the quality of rayon in recent years, there still appear to be skeins in some lots which have a greater affinity for the dyestuff than the others. There is no apparent way for the dyer to remedy this condition, and all he can do is to seed out the skeins which show a marked difference as compared with the remainder. The rest of the silk is rolled up into bundles somewhat compact and uniform, and then sent back to the converters or consumers.

National Oil Products Salesmen to Meet.

The annual sales convention of the National Oil Products Company, and its subsidiary, the Metasao Chemical Company, will hold their annual sales convention and outing at the Highland Pines Inn, Southern Pines, N. C., the first week in January. The meeting will bring together the officials and the combined sales forces of the two companies. A very interesting program is being arranged for the meeting.

C. I. Post, of Charlotte, is Southern agent for the National Oil Products Company.

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Practical Discussions By Practical Men

Are Dobby Heads Reversible?

Editor:

We have a lot of old doobby heads and have used all of the right hand ones that we can put in. We want more left hand ones. Now, is it possible for us to change our remaining right hand dobbies to left hand ones? Weaver.

How to Match Colors.

Editor:

What is the best way to match colored samples. Some days the light is dull. On other days the sun is bright. And I notice that these two different kinds of light make a difference with the colors. Again I hold it in one way to the light and a tell my dyer that it does not match. Then he take it in his hands, and turns it over a couple of times, holds it up to the light again, and shows me how "nicely it matches." What is the trouble between my matching wrong and his matching right? Is there any psychology in this, or sleight of hand process? Dunno.

Answer to Mover.

Editor:

Mover's question is particularly interesting because there is no more important question in a cotton mill than that pertaining to twist in the roving. There is more good work spoiled in a mill on account of having the wrong twist in roving than from any other source.

It may seem strange, but the truth is, that roving which is twisted harder than should be, will run good in the carding department. While roving machinery will also run very good when there is insufficient twist in the roving made for the spinning. Therefore, if the carder is not on his guard he will be making bad roving by the wholesale. When this occurs, the soft twisted roving will break back in creels so much that the worse kind of work will be made.

And hard twisted roving will not draw and will come out raw. This will not only make bad work, but spoil the leather covered rolls by the wholesale.

The remedy for avoiding all of this is for mover to study well his new proposition. A good rule to follow and which is better than the general book rules, is to put just enough twist in the roving to avoid breaking back in the creels.

Put a full roving bobbin on the floor and see if the end will pull the bobbin and make it roll toward you when the end rests on the top of the bobbin. When making this test, take hold of the end about 18 inches away from the bobbin, and pull slowly and

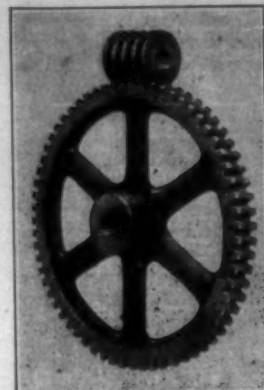
steadily. If it breaks, there is not enough twist in the roving. Also turn the bobbin over and the end bobbin will be on the bottom, and level with the floor. Gently pull again by pulling with the loose end at about 18 inches apart. If the roving does not break it has too much twist in it. Short cotton requires much more twist than long. The cheaper grades of long cotton require more twist than the better grades. Some lots of cotton of the same grade, will require more twist than o'hers. It is all a matter of closest study and experience, and watchfulness on the part of the good carder. Roving.

Wamsutta to Test High Draft Spinning

The Wamsutta Mills, of New Bedford, Mass., plan to give a thorough trial to the long draft spinning method, by the installation of an equipment covering approximately 2,000 spindles. This system of handling cotton fibers, known as the Casablancas system of high drafting for cotton spinning, is already in use by a large number of mills on the Continent, and has been the subject of experiments by a few mills in this country. Results which some of the European mills have been able to get, it is said, have demonstrated that it is entirely practicable and that, when properly applied, it enables cotton manufacturers to get a much better yarn from any given type of cotton than is possible by the present methods of cotton processing.

Basic patents covering this system are understood to be under the control of Hilaturas Casablanas S. A. of Sabadell and Barcelona, Spain. It is further understood that certain American cotton manufacturers, one of whom is C. F. Broughton, treasurer of Wamsutta, have formed a syndicate under the name of the U. S. Casablancas Syndicate, for the purpose of introducing the new system into this country. It is said that this syndicate already has a definite option on the American rights, and has opened an office in Boston where a demonstration machine was recently installed. H. C. French of Wamsutta Mills has been assisting F. Permanyer, American representative of the Spanish concern, in getting the Boston office established at 12 Pearl street.

The departure of Arthur L. Emery agent of Wamsutta, for Europe a short time ago was for the purpose of thoroughly investigating the system in practical operation in cotton mills on the Continent. Upon his return, negotiations now pending between the U. S. Casablancas Syndicate and the Spanish nantees of this process, will be definitely closed.



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President of Arnold, Hoffman & Co. Dies

Edward E. Arnold, who was for nearly fifty years president of Arnold, Hoffman & Co., died at his home at Providence, R. I. on December 15th.

He entered business life in Providence, May 11, 1874, his first position being with Mason, Chapin & Co., wholesale drugs and chemicals. From a clerkship in 1874, he rose to a partnership in 1883, and later, as the elder partners retired, a complete reorganization was effected, the new style and title of the firm, Arnold, Peck & Co., Inc., Edward E. Arnold, president.

His business life was one of marked success, his connection with wholesale drugs and chemicals covering the entire period now nearing the half-century mark. But his association with Arnold, Hoffman & Co. was but one of his many important business interests. He was president of the Mathieson Alkali Works, which he founded in 1892, at Saltville, Va.; president of the Castner Electrolytic Alkali Company, of Niagara Falls, New York; president of the Nitrogen Products Company; president of the Oneonta Light & Power Company; president of the Pawtuxet Valley Water Company; director of the Industrial Trust Company.

Notwithstanding his heavy business responsibilities, Mr. Arnold reserved a share of his time for the fulfillment of his obligations as a citizen, and gave freely of his time, ability and means to the public good. He served for three years as a member of the Rhode Island Senate from Coventry. Previous to which he was a member of the Coventry Town Council for several years, and for a time its President.

He was a member of Ionic Lodge of Masons of Greene, of which he

was a Past Master; Providence Royal Arch Chapter; St. Johns Commandery of Knights Templar, and Palestine Temple, Nobles of the Mystic Shrine. He was a member of the Hope Club, Squantum Association, Rhode Island Country Club, Rhode Island Historical Society, Turks Head Club, Chemists' Club of New York, Creve Coeur Club of Peoria, Ill., and Union League Club of New York.

Mill Men Feast

Speeches, music, fellowship and fun, featured the annual "Dover Mill" banquet at Cleveland Springs, Shelby, N. C., at which 150 to 200 overseers, section men, bosses, foremen, officials, office help as well as the preachers, doctors and other guests were present, representing the Dover, Eastside, Ora and Ella Mills. While John R. Dover, has no official connection with the Ella, which he built some twenty years ago, the Ella was represented in the large "family banquet" out of sentiment for his "first love." This annual get-together is called the Dover banquet because it is Mr. Dover's way of showing his appreciation as mill head for loyal service, cooperation and faithfulness which characterizes the Dover organizations.

At the same time, the Shelby Mill, of which R. T. LeGrand is secretary-treasurer, was giving a banquet to 50 bosses, foremen, section men and overseers of the Shelby Mill, the largest single textile unit in Shelby. The scene of this was Central Hotel, where Dick Brabble had a most bountiful spread of good things to eat.

Greenville Mill Give Bonuses.

Greenville, S. C.—Employees of Comperdown Mill were given a cash bonus of \$50 or less at Christmas, according to announcement made

by president Allen J. Graham. The employees who have been with the company for a period of five years were given \$50 in cash, those who have worked three for two and a half years were given \$25, while smaller bonuses were given to those employees who have been with the mill for a shorter period. The bonuses were paid in time for the employees to use this money for their Christmas shopping.

Christmas At White Oak Mill

The First annual banquet of the overseers, second hands, and loom fixers of the White Oak Cotton Mill, Greensboro, N. C., celebrated the yuletide season in the form of a turkey dinner with approximately seventy-five of the leading men of the department present. H. Pennington overseer of the weaving room acted as toast master of the evening. During the evening many were called upon to make short talks of practical suggestion to promote the best co-operation possible. H. M. Angel made a short talk on "Our Interdependence on other agencies." Rev. A. T. Howell, Pastor of the White Oak Baptist Church made a good speech on "Better Co-operation and Leadership." A. S. Arnold, General Secretary delivered a talk of humor and fun. A. L. Beal, Sub-Foreman in the department pointed out in a simple and practical way how that a better grade of goods can be produced by the general forces, uniting their effort in one direction. One of the interesting parts of the gathering was the fact that Mr. Pennington and T. E. Gardner, superintendent of the Mill has been employed with the company since 1898, Mr. Walden since 1903, Mr. Barrier since 1907, these men have served in a large capacity in making White Oak more than just a place to work.

Alexander Leaves Millions to Schools and Churches.

Forest City, N. C.—J. F. Alexander, textile manufacturer of this place, who died last week in St. Petersburg, Fla., left a large amount of his estate to schools and churches in North Carolina. Property valued at several million dollars is set aside, the income from which is to be used by those designated institutions for 10 years. At the end of the period the property is to be sold and divided among the same beneficiaries.

Mr. Alexander was president of the Alexander Manufacturing Company, of this place, and chairman of the board of directors of the Farmers Bank & Trust Co., also of this city. He had large holdings in several Georgia lumber mills and was the owner of the Alexander and Carolina hotels at St. Petersburg, Fla.

He was a native of this section and the body was returned here for burial.

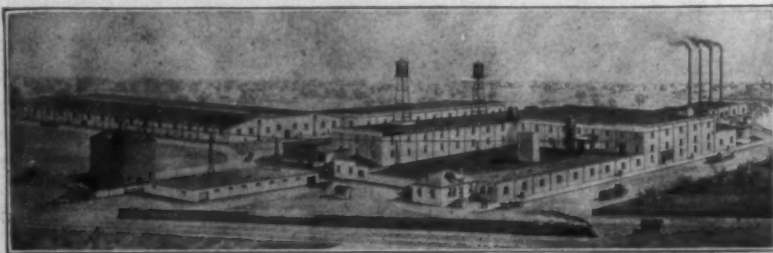
National Shade Card.

The National Aniline and Chemical Company, Inc., has just issued a new shade card entitled "Direct Dyes for Cotton," showing a most important series of 98 colorings on cotton yarn.

Besides the dyeings, which are shown in two shades, the book includes very full technical directions for the use of the individual dyes, covering twenty pages of text matter. There is also included an elaborate set of tables giving the fastness properties of each dye, which will enable the dyer to make his selections to meet every condition that is presented to him in the dye-house.

The volume is substantially bound and will prove to be an important addition to the working library of every cotton dyehouse.

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THURSDAY, DECEMBER 31, 1925

DAVID CLARK
D. H. HILL, JR.
JUNIOUS M. SMITH

Managing Editor
Associate Editor
Business Manager

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Interviewed

DURING the past week we have occupied considerable front page space in the newspapers of North Carolina and especially the Raleigh News and Observer, as the result of an interview on the subject of the outside activities of the University.

From the bitter experience of the past we had resolved that we would never again be interviewed without a third party present to bear witness to any statements made, but a young lady reporter from the News and Observer came in just at noon on Christmas Eve and as everybody in our organization was hurrying to complete their work and get away for the holiday, we talked to the reporter without anyone being entirely within hearing distance.

She said that she had been to the University to get their side of the controversy about outside activities, and now wanted to get the manufacturer's side.

We were careful of the statements made and said that our position had been expressed in several editorials. Much to our astonishment a long interview with us, including the following, appeared in the News and Observer of the next day.

"Mr. Clark expressed no doubt that the manufacturers can and will cause the legislature to cut the appropriation of the University if they persisted in making studies unwelcome to them."

During the entire interview we did not mention the next legislature or any legislature and the word "appropriation" was never used.

We did say that if the University persisted in making investigations it would hurt their influence, and that is the only possible ground for attributing to us any such statement, as the above.

After we had wired the News and Observer repudiating the alleged interview, the reporter called us over the phone and during the conversation admitted that we had not made the statement attributed to us, but that she composed it from her inference or understanding of two statements made by us at different times.

Having a double phone connection we had a witness to that admission.

We regret exceedingly that the reporter misunderstood anything that we said, for it subjected us to unjust and unnecessary criticism.

Our position is clearly outlined in our editorials of Sept. 24th and Nov. 26th, both of which are reprinted upon this page.

That our position is correct is very clearly shown by the report of one of the studies made by the Institute for Research in Social Science at the University of North Carolina and published in their Journal of Social Forces which could be more properly named the Journal of the Socialistic Forces.

The following is an extract from a newspaper report of the study:

School children in two cotton mill villages in widely separated sections of the State are declared to be two-thirds below normal intelligence and 40 per cent feeble-minded in one group and 50 per cent below normal intelligence and 34 per cent feeble-minded in the other group in an article by L. A. Williams in the last number of "Social Forces," published by the University of North Carolina press.

The article in the Journal of Social Forces hedges the report of this study with statements that it is not conclusive, etc., but the main statement that 40 per cent of the children in one mill village and 34 per cent in another were feeble-minded has gone out over the United States and the bare statement coming as it does from our own University will

appear again and again in the radical and socialistic press, and many and severe will be the criticisms directed at the cotton manufacturing industry of the South.

We are not prepared to admit that Mr. Williams was competent to conduct any such investigation or that the results as stated by him are reliable.

The editor of the Southern Textile Bulletin served two years as a college instructor, and having been on the inside of college affairs is prepared to testify that a big percentage of college professors and instructors are narrow minded and impractical and would be failures in any line of work in which it was not quite as easy to cover up lack of ability and intelligence as in teaching.

Under the stamp of approval of the University of North Carolina, sensational but unproved statements relative to the feeble mindedness of children in the cotton mills have been broadcasted over the country, and the natural inference is that the alleged lack of intelligence is due to work in the mills.

A large percentage of the children investigated had not yet reached 14 years of age, and had therefore not worked in a mill. It is practically certain that the parents of most of them had come from farms since or within a few years of the birth of the children and that the mental condition of such children could not be justly attributed to cotton mill work or cotton mill surroundings.

No comparative study of an equal number of farm children has been made nor has any study been made of the intelligence of the children of the professors and instructors of the University. The last mentioned might prove very interesting.

The cotton manufacturing industry of North Carolina and of the South has been investigated, harassed and abused for many years by agencies in Washington and in the North and just when it had reached the point that the country had realized the falseness of most of the acquisitions, our own University establishes "Meddling" Departments, financed partly by New York money, and we are called upon to stand unending investigations by egotistical instructors who demand the right to measure the industry by yard sticks of their own manufacture.

No one has ever contended that conditions in the textile industry are ideal or that people from tenant farms can be brought into cotton mills and immediately made super-intelligent, but the mill men of the South, with few exceptions, are doing all they can for the welfare of the mill population and expect to continue to do so.

This effort to flood our mills with investigators and reformers wearing the cloaks of our own educational institutions is a consummate outrage which the industry should not be called upon to stand.

The industry has nothing to hide and any citizens of North Carolina who has any such idea can easily gain entrance to any mill or village, but the industry should not be subjected to Rockefeller Institute spies, no matter in whose name they seek entrance.

Breeding Radicals

(Reprint from Sept. 24th, 1925)

THE University of North Carolina is a great institution and is doing wonderful work, but in a recent newspaper dispatch we note the following:

Chapel Hill, Sept. 21.—The North Carolina Club of the University, which comprises a group of some 100 students engaged in the study of North Carolina's social and economic ills with the view to seeking a remedy * * * *

When 100 students set out to study "the social and economic ills of North Carolina" they start with the supposition that there are a multiplicity of such ills and that it is their duty to cure all ills, and in other words at the most impressionable time in their life they become reformers.

Let the University of North Carolina turn the minds of one hundred students each year towards the necessity of curing "the social and economic ills of our State" and in a few years North Carolina will be overrun with busy-body reformers and we will be in the same condition as Massachusetts where reformers and uplifters who are largely the products of the colleges of that State have done so much reforming that they have driven the great shoe industry to other sections of the country and are fast driving the textile industry to our section.

The object of a University is to educate young men, not to reform the social and economic fabric of a State.

The study of social and economic evils should be left to mature men and women and not to immature college students under the direction of professors who are inexperienced in business and notoriously impractical.

We know that this editorial will bring down wrath upon our head but we do not wish to see our universities and colleges become incubators for reformers.

It is no worse at the University of North Carolina than at many other similar institutions and we know that most of the U. N. C. graduates feel as we do upon this subject.

The South was vilely slandered by Tannenbaum in his article, "The South Buries Its Anglo-Saxons," but the inspiration and most of the information was secured by Tannenbaum while visiting an instructor at the University of North Carolina.

We make no denial of the fact that social and economical evils exist, but it is not the function of our University to remedy them and it should not become a breeding ground for reformers.

College Bred Agitators

(Reprint from Nov. 26th, 1925)

WE have from time to time had something to say about the outside activities of colleges and we are becoming firmly convinced that such activities are a real menace.

In review of a recent book, "The Confessions of a Reformer," by Frederic C. Howe, the reviewer says:

At Johns Hopkins University he heard of social and economic questions that had
(Continued on Page 26)

Personal News

Fred J. Smith has become second hand at the Osage Manufacturing Company, Bessemer City, N. C.

George H. Warren will be superintendent of the new Roanoke Knitting Mills, Roanoke, Va.

J. O. Brown has resigned as superintendent of the Greenville Cotton Mills, Greenville, N. C.

W. B. Cozart has accepted the position of superintendent of the Greenville Cotton Mills, Greenville, N. C.

G. C. Rubright is to be superintendent of the Glorie Underwear Mills, which is moving its plant from Reading, Pa., to Eufaula, Ala.

J. D. Grant, of Charlotte, has accepted a position with the Red River Cotton Mills, formerly the Garhartt Mills No. 2, Rock Hill, S. C.

J. W. Swan has been promoted to overseer of carding and spinning at the Red Springs Cotton Mill, Red Springs, N. C.

A. F. Garrison has not resigned as superintendent of the Chas. H. Bacon Company, Lenoir City, Tenn., as recently reported through error.

J. V. McCombs, general superintendent of the Hart and Fountain Mills, Tarboro, N. C., has returned from a visit to relatives in South Carolina.

L. M. Manly, overseer of carding at the Gluck Mills, Anderson, S. C., is convalescing from an operation for appendicitis, which he recently underwent at the Anderson County Hospital.

A. G. Pittman, of Warrenton, N. C., has accepted the position of overseer of carding at the Hart Mill, Tarboro, N. C., succeeding W. A. Jones, resigned.

W. H. Gibson formerly superintendent of the Waxahachie (Tex.) Cotton Mills, but now president of Gibson Supply Company, of Dallas, Texas was in Charlotte last week to attend the funeral of his sister, Mrs. Florence Bridges.

Marvin H. Carter is overseer spinning at the new Pepperell Manufacturing Company, Opelika, Ala., having held that position since the mill began operations. There has been no change in this position, as recently reported through error.

P. W. Wilbanks has resigned as overseer of spinning, spooling, and twisting at night at the Mason Cotton Mills, Kings Mountain, N. C., and accepted the position of overseer of spinning, spooling, twisting and winding at the Park Yarn Mill, of the same place.

Mrs. Florence Bridges.

Mrs. Florence Bridges, the wife of a former cotton mill overseer died in Charlotte on Dec. 17th, and was

buried at her former home at Gafney, S. C.

Mrs. Bridges was a sister of W. H. Gibson, of Dallas, Texas and an aunt of W. H. Gibson, Jr., superintendent of the Cascade Mills, Mooresville, N. C., and L. B. Gibson, superintendent of the Fairmont (S. C.) Manufacturing Company. W. H. Gibson reached Charlotte on the day of her death and attended the funeral.

Mrs. Bridges was held in high esteem by a large circle of friends.

Erwin, N. C., Named in Honor of W. A. Erwin.

Duke, N. C.—Effective January 1, the town now known as Duke will be known as Erwin, the Postoffice Department having accepted the change inaugurated by citizens of this place.

Duke is an industrial town, having two cotton mills. It was begun about 25 years ago with the building of the first of the Erwin Cotton Mills and was named in honor of the late Washington Duke, big stockholder in the mills. The new name was chosen in compliment to W. A. Erwin, of Durham, secretary-treasurer of the Erwin chain of mills. Name was changed because of conflict the town has had with Duke University in Durham. Mail and telephone calls intended for the university often came here, while mail and phone connections are sent to Durham, the similarity of names causing a great deal of confusion.

Dividends at Greenville

Greenville, S. C.—Directors of five cotton mills, meeting here, declared dividends totalling approximately \$300,000, this amount payable to stockholders on January 1, the largest single amount to be paid is by the Woodside Mill, which will pay semi-annual dividend of 4 per cent on the common stock and 3½ per cent on its preferred stock, totalling \$70,000 and \$75,000 respectively. The Easley Cotton Mills, which is under the Woodside management, will pay a dividend of 3½ per cent on its preferred stock, the dividend totalling \$45,000.

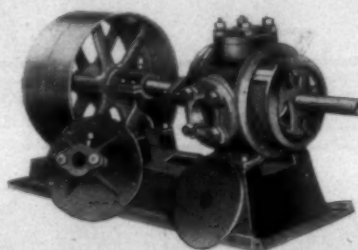
The Brandon, Poinsett and Woodruff Mills declared dividends totalling \$409,350, it was stated by Aug. W. Smith, president, at the conclusion of the meeting of directors. Brandon Mill declared its semi-annual 4 per cent dividend on \$957,000 worth of common stock and 3½ per cent on \$500,000 worth of preferred stock the common stock dividend amounting to \$38,280 and the preferred \$17,500. Poinsett Mill declared its semi-annual dividend of 3 per cent on \$474,000 common stock, which amounted to \$14,200; no preferred. Woodruff Mills at Woodruff, declared its semi-annual dividend of 5 per cent on \$787,000 worth of common stock which amounted to \$93,350.

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Whether your particular installation requires a solid pump, a pump with acid-resistant lining, or a unit of two or more pumps mounted with power plant, you will find a Blackmer which will give you economical, long-time size pumping service.

These Blackmer Features are proving invaluable in many textile plants:

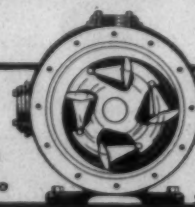
- 1st. A Blackmer automatically takes up its wear as it occurs.
- 2nd. Replaceable cylinder linings of acid-resistant bronze.
- 3rd. Monel Metal shaft, also resistant to acid.
- 4th. Practically leak-proof. There are no valves in a Blackmer.
- 5th. Cylinders cast from either iron or bronze.
- 6th. Equipped with tight or loose pulleys or individual power plant.

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MILL NEWS ITEMS OF INTEREST

McComb, Miss.—The Berthadale Mills are reported to have purchased 40 looms, the mill having previously operated spinning machinery only. A. K. Landau is manager.

Shelby, N. C.—The Shelby Cloth Mills has filed an amendment to its charter changing its corporate name from the Shelby Cloth Mills to the Cleveland Cloth Mills. There is no change in the management nor in the capitalization.

Albemarle, N. C.—Ten machines, imported from Germany, are being installed in the knitting department of the Wiscassett Mills Company. They will be used for knitting the higher grades of full-fashioned silk hosiery.

West, Texas.—The Brazos Valley Cotton Mills are installing the following new machinery: Sixteen 40-inch Model P Draper looms, and fourteen 40-inch cards. The mill has at present 6,240 spindles and 210 looms on duck and osnaburgs.

Charlotte, N. C.—Work on the new plant of the Veritas Silk Mills, Inc., here is well under way and construction will soon be completed. The building will be one-story, 80x100 feet, equipped with 250 spindles and 40 looms for the production of fine silk goods, including georgette and crepe de Chine. The West New Work, N. J., plant of the company will be discontinued.

Burlington, N. C.—The Southern Dyeing Company, which was recently organized here, was formed to take over the Southern Artsilk Bleach and Dye Works. The company of which E. W. Sweet is president, has the same officers as the original corporation.

The plant was installed here last year. The company specializes in dyeing cotton and rayon and has already built up a large business.

Spartanburg, S. C.—Improvements representing an outlay of approximately \$200,000 are either in process of being made, or are planned for the immediate future of the Arkwright Mills, it was announced by R. Z. Cates, assistant treasurer.

Contracts have been let for the erection of a brick structure, 70x100 feet, to be used as a new cloth room. Installation of 500 new Hope-dale looms to replace 539 of an older type is now being made. Although the number of looms will be slightly decreased, the aggregate output will be as great as formerly because the unit capacity of the new machines is greater than that of the older ones.

Arkwright manufactures heavy drills and a special cloth used in making tops for Ford cars. An initial order for 1,000,000 yards of the cloth was obtained several weeks ago, and the management expects to continue manufacturing it regularly in the future.

Oxford, N. C.—The plant formerly operated by the Hemshaw Hosiery Mills has been purchased by the C. & M. Hosiery Mills, Inc., whose plant was destroyed by fire a few months ago. It is said that additional equipment will be installed.

Chattanooga, Tenn.—T. C. Thompson & Co., of Charlotte, was awarded the contract to construct a two-story addition to the Dixie Spinning Mill, for approximately \$117,000, members of the contracting firm announced. The addition will be of brick and heavy mill construction, 108 by 128 feet in size. The contract also provided for the erection of a warehouse 100 feet square and fifteen four-room, ten three-room and seven five-room houses, it was said.

Durham, N. C.—Beginning next April, the Golden Belt Manufacturing Company, of this place, will begin making full-fashioned silk hosiery for women. The company has

purchased from a German concern a unit of 12 machines, and it is expected that the machinery will reach the plant in the early spring and be installed in time for April operations.

The Golden Belt Company is at present, as a part of its work, manufacturing seamless silk hosiery, employing about 125 workers in the hosiery department. The full-fashioned machines will be put in the seamless hosiery department and will amount to an extension of that department instead of the creation of a new one. The new machines will cost approximately \$100,000. Nothing but the finest grade full-fashioned hosiery will be manufactured in this department, or section, according to G. W. Hundley, president of the company.

Bristol, Va.—The Bristol Hosiery Mills, located in a new four-story brick building on Fourth St. here, have closed down permanently and

the machinery will be moved at once to Chattanooga, Tenn. Announcement to this effect has been made by officials of the United Hosiery Mills, of Chattanooga, the parent company. The United Mills has a large plant in Chattanooga, headquarters of the company. The local branch has been in operation about eight years, although irregularly for the last two years. The bleaching and dyeing departments of the local plant were removed to Chattanooga and incorporated in the mill there.

Arrangements for closing the plant here were made recently when Frank Miller, president of the United Hosiery Mills, was in Bristol. The Bristol branch has been engaged in the manufacture of hose for children and when running at full capacity employed about 300 people, mostly women. The decision to close the Bristol plant was made because of facilities at Chattanooga to handle all that was undertaken here.

The Grey Mills, of this city, is still running. This plant was established here about six years ago.

Woodbury, Ga.—Plans for construction work on a \$1,000,000 cotton mill here, to begin about March 1, are well under way, about three-fourths of the stock having already been subscribed, according to a statement by Mayor A. D. Jones.

Mayor Jones, J. L. Betts formerly of Columbus; J. R. Powell, and S. P. Wilburn, all of Woodbury, and John Baugh, of Hogansville, Ga., are the organizers. Directors and officers have not yet been named, though it is expected this will be done at a meeting of stockholders early in the new year.

Mayor Jones says the mill will not be a bonded one and that it will start free of indebtedness; also that all capital will be supplied by Georgians. A site for the new mill, according to Mayor Jones, has already been selected, three-quarters of a mile from the town of Woodbury, which is 50 miles from Columbus.

The mill will be operated by electric power supplied by the Central Georgia Power Company, of Macon, according to Mr. Jones. John Baugh, of Hogansville, is expected to be superintendent.

Anderson, S. C.—The Appleton Company, of Lowell, Mass., has formed a subsidiary Massachusetts company under the name of Appleton Manufacturing Company, all of the stock of the subsidiary company being owned by Appleton Company. The subsidiary has taken title to the Southern properties and is at present operating same. Since the Appleton Company owns the entire stock of the Appleton Manufacturing Company, it will receive the entire benefit of the operation of the new Southern mill.

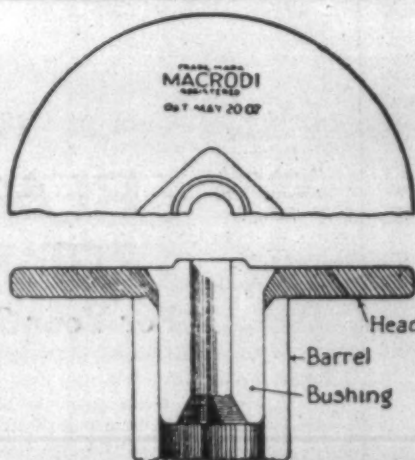
The reason a corporation was formed to operate the Southern mill

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is that the manufacturing operations are at a distance in the South, and it was decided that a Southern mill could be most advantageously run by a Southern treasurer who was located at the mill and familiar with the customs there.

D. D. Little, who has been made treasurer of the Appleton Manufacturing Company, has rebuilt and operated the Marion and Clinchfield Mills in North Carolina, and at present is also treasurer of the Florence Mill.

The name of J. F. Shumate of the Citizens National Bank of Anderson, appears on the list of the directors of the Appleton Manufacturing Company, as revealed by the list of officers and directors of the subsidiary organization. The officers and directors are: President, Charles F. Choate, Jr., chairman of the board, Herbet W. Owen; treasurer, David D. Little; assistant treasurer, Hugh F. Little; clerk, John P. Wright. Directors: John W. Blodgett, Grand Rapids, Mich.; Charles F. Choate, Jr., Boston; Fredrick S. Clark, North Billerica, Mass.; Arthur J. Cumnock, New York; Morris Hadley, New York; David D. Little, Spartanburg, S. C.; Alfred L. Ripley, Boston; Charles Runels, Lowell, and J. F. Shumate, Anderson, S. C.

To Start 1925 Census Of Mills' Production

The Director of the Bureau of Census, Department of Commerce, announces that plans are already under way for the next biennial census of manufacturers, which will cover the year 1925. Notice to this effect is contained in the bulletin of the National Association of Cotton Manufacturers.

"In deciding upon the times to be covered by the census, the bureau has consulted with the representatives of various manufacturer's associations with a view to securing, as far as practicable and without making the schedule too elaborate, information which will be of value to the representatives of the several industries concerned, and at the same time furnish a record of the pro-

gress of manufactures generally throughout the United States.

"The blank forms upon which reports should be made will be mailed to all manufacturers early in January and a report will be required from each manufacturer whose gross products are valued at \$5,000 or more for the year 1925. All schedules for manufacturers in the textile industry who are located in Massachusetts should be forwarded to Roswell F. Phelps, special agent, Bureau of Census, Room 469 State House, Boston, but those engaged in the industry in States other than Massachusetts should forward their reports to the Director of the Census, Washington, D. C.

"It is hoped that every manufacturer concerned will have his records in such shape that he can fill out the schedule within a few days after its receipt, as the tabu-

lation of the industry will not be made by the bureau until reports are received from all manufacturers engaged in it."

Rayon Plant For North Carolina

North Carolina is practically certain to get one of the proposed new plants of the Industrial Rayon Corp. it was learned recently. Vice-president Wrigley, of the Cleveland company, has just returned from an inspection of various Southern sites, which he visited with a number of Cleveland men, and is satisfied that the plant should be located in North Carolina.

Additional information still remain to be received from certain points under consideration, and until this is all in and considered no announcement concerning the exact

location can be expected, but a decision may be reached this week.

The company is also planning to establish a plant in New England or New York State. Another plant may be built in some foreign country. Considerable speculation attaches to the plans of the Industrial to build abroad. The suggestion of some rayon interests is that the South American field may be beckoning, while others say the Far East looks more attractive.

Bemberg to Produce Next Fall

The American Bemberg Corp. expects to begin production in this country of Bemberg yarn, a special type of artificial silk, by next Fall. Jacob Strauss, vice-president of the company, stated that he is receiving good reports of the progress made in the construction of the new plant at Johnson City, Tenn.

The initial output of the company is estimated at 5,000 to 6,000 pounds a day, all sizes, as low as 60-denier. The plant will give employment to about 1,500 workers.

Mr. Strauss expects no difficulties with the Chemical Foundation over the question of patents. Interviewed in his office, he showed little concern over the report that the Foundation would attempt to obtain an injunction to prevent infringement of the German patents it holds.

"The patents held by the Chemical Foundation," said Mr. Strauss, "are obsolete, and have no bearing whatever on the process which will be used by the American Bemberg Corporation."

New hosiery samples, produced from Bemberg yarn, were shown to demonstrate the present state of development of this new fiber. The hosiery is a full-fashioned article, manufactured in Germany. It was stated specifically, however, that the same quality could be made by full-fashioned hosiery plants in this country.

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A loom fixer on wide Crompton automatic blanket looms. Do not apply unless you have had experience on looms weaving blankets. Good wages to right man. Address S. I. C. Care Southern Textile Bulletin.

Help Wanted

Experienced raw stock dyer. Plant located in East Tennessee. Please give experience, age and salary wanted. Address L. E. O., care Southern Textile Bulletin.

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Roller Coverer Wanted

Wanted—First-class Roller Coverer, one capable of taking charge of roller shop when necessary. No loafer need apply. State experience and salary wanted in first letter. Address A. J. W. Care Southern Textile Bulletin.

Wanted

On account of starting up additional machinery and also night work, we can use 3 or 4 good Draper loom-fixers by December 28th. Apply in person or address C. H. Goodroe, Supt., Acworth Mills, Acworth, Ga.

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SERVICEABLE

COLUMBUS, GA.

College Bred Agitators

(Continued from Page 22)

never disturbed the quiet atmosphere of his home town.

How closely does this tally with the recent newspaper statement from the University of North Carolina that one hundred students had banded together "to study the economic and social evils of North Carolina and find remedies for same."

The report of a strike at Paterson, New Jersey, says:

An all-day conference between representatives of the strikers, led by a Harvard Law School graduate, and the owners had been called by the Rev. Father Leonard Borgetti, pastor of the church, who has been trying to end the strike.

The strikers went out about three weeks ago in protests against the plan to install the multiple-loom system. At their head has been Albert Weisbord, who has been admitted to the Massachusetts bar and was graduated from the Harvard Law School in 1924.

A college bred agitator leads a strike of ignorant foreigners and re-

fuses to let them return to work.

There could have been no bond of sympathy between Weisbord and the strikers except the radical ideas that the doubtless absorbed from some radical impractical professor.

We believe that a college should attend strictly to the education of young men and we can see no good reason for outside activities and investigations.

The country is sick unto death of Federal bureaus and State bureaus, without having the added burden of bureaus in every college and university.

It may be the function of a college to investigate the social and economic evils of its State and set the students upon the problem of curing such evils, but we fail to see why it should be considered a college or university function, and we know that such investigations breed radicals.

Most Federal and State bureaus are created primarily for the purpose of furnishing jobs and we wonder is there is not a somewhat similar motive in the creation of college bureaus for outside activities.

Textile Colorists to Meet

The Southern Section of the American Association of Textile Chemists and Colorists will hold its Winter meeting at the Alamance Hotel, Burlington, North Carolina, on Saturday evening, January 23, 1926.

Dr. E. C. Brooks, president of the North Carolina State College, will deliver the principal address, which will relate especially to "The Importance of the Technical Man to the Textile Industry," as the head of one of the principal institutions in the South engaged in training young men for the Textile Industry, we may expect a message of unusual importance to the men charged with the dyeing and finishing of our textile products, and to the industry as a whole.

Dr. Brooks will be followed by a general discussion of a number of live subjects, which will be led by Messrs. M. T. Johnson, of the Judson Mills, Greenville, S. C., J. T. Chase, of the National Aniline & Chemical Company, Inc., Charlotte, N. C., W. D. Shields, of the Durham Hosiery Mills, Durham, N. C., C. R. Ephland, of the E. M. Holt Plaid Mills, Burlington, N. C., and Malcomb Macken-

zie, of the Sandoz Chemical Works, Inc., Charlotte, N. C.

A. R. Thompson, Jr., of the Rhom & Haas Company, Inc., Charlotte, will tell us of his impressions of the annual meeting of the association, recently held in Boston, which he attended.

Stuart Cramer Gets Humidifier Patent

Patent No. 1,564,949 describes the patent recently issued to Stuart W. Cramer, of Cramerton, N. C., on a type of humidifier which embodies some decidedly new and interesting features.

It is of centrifugal type, and no little of its novelty consists in it utilizing an upward draft of air, rather than the downward draft, which latter is most universally prevalent in the present-day humidifier.

From the patent description, the device would also appear to have unique features as to regulating the evaporative capacity, ease of cleaning, and other essentials.

It is not known whether this device will be marketed, it being understood that Mr. Cramer expects to use it in his own mill.

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Cotton Mill Processes and Calculations

(Continued from Page 16)

and middle roll, so that the most weight will be on front roll.

Lever is made with notches for adjusting the leverage of weight.

Front rolls on spinning frames, as well as other machines that have drawing rolls, are made larger than the back rolls in order to stand the heavier weighting on the front roll.

Specifications.

Following is a sample specification blank to be filled out in ordering spinning frames. The same form answers for both warp and filling frames; but warp frame specifications should be filled out on one blank and filling on another:

Number of Frames _____
 Warp or Filling _____
 Number to be Combination Frames _____
 Combination to be set for Warp Filling _____
 Width of Frame (36 inches or 39 inches) _____
 Length of Frame over all _____
 Number of Spindles per Frame _____
 Gauge of Spindles _____
 Kind of Spindles _____
 Kind of Ring _____
 Burnished Ring or not (extra) _____
 Diameter of Ring _____
 Ring Holder (cast iron or plate) _____
 Separators _____
 Length of Traverse _____
 Saddle _____
 Lever Screw _____
 Thread Guide _____
 Rolls, Single (short) or Double (long) Boss _____
 Rolls, solid or shell _____
 Creels: one or two stories _____
 Single or Double Roving _____
 Size of Bobbin in Creel _____
 Hank of Roving in Creel _____
 Number Yarn to spin _____
 Twist per inch _____
 Size of Tin Cylinder _____
 Size of Spindle Whorl _____
 Pulleys to be on Gear End or on Out End _____
 Driven from above or below _____
 Speed of Driving Pulleys _____
 Maker _____
 Purchaser _____
 Price _____
 Terms _____
 Remarks _____

CHAPTER X.

Preparation of Yarn for Weaving

189. Yarn is spun either for utilization on the premises—in weaving, knitting, etc.—or for shipment to market as yarn. In either case, it requires a certain amount of preparation.

Considering first the preparation of warp for weaving brown goods (or goods not dyed,) the processes are: Spooling, Warping, Slashing or Sizing, Drawing-in.

SPOOLING.

190. The object of spooling is to take yarn from bobbins, on which it has been spun and wound with irregular tension.



A Graton & Knight for Every Drive

Make your spinning frames toe a new mark!

BELT your spinning frames with the Graton & Knight Leather Belting that is *standardized* for that drive. Watch them hit a new high for production.

Production increases—for these belts give steady, unvarying speed. Fewer broken ends. Less time out for repairs and adjustments. Even, more uniform thread. They're built for the job. Made of live, flexible leather. They work faithfully—last long—cut down your belting costs.

Three hundred thousand packer hides of finest quality are processed in The Graton & Knight Belt Leather Tanneries each year. This stock, plus controlled, standardized production, makes our prices, quality for quality, 5 to 10 per cent lower than the field.

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When Nature Frowns is the Time to Prepare for Her Smiles

NOW the lawns and fields are brown and wind-swept; flowering plants are asleep, trees are bare and almost lifeless.

Soon this will be changed. Warm winds will stir the branches; sun and showers will awake the plants; meadows and hills will be clothed in green.

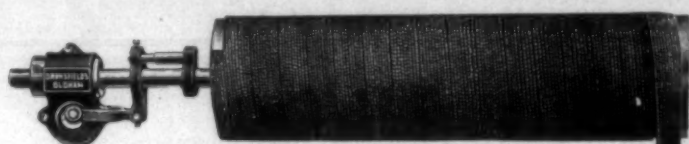
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Our landscape service will assist you in planning for color, for shade and comfort. Our representative will probably be in your neighborhood soon, and a letter or wire to us will arrange for a call. A year's guarantee goes with each job we do—ask us about it.

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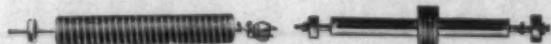


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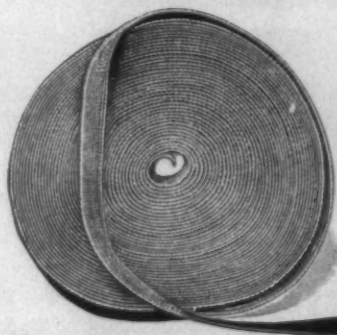


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and to rewind it regularly on spools, which hold the yarn from 10 to 15 bobbins.

Spooler.—Fig. 42—LETTERING.

- A. Spinning Bobbin, in Holder
- B. Bobbin Holder
- C. Traverse Rod
- D. Thread Guide
- E. Spool, being wound
- F. Tin Cylinder
- G. Rock Shaft
- H. Rock Arm
- J. Connecting Rod
- K. Lifting Rod
- L. Bobbin Box.
- M. Empty Spool Box
- N. Full Spool Box.

SPOOLER.—PROCESS.

191. Bobbins are supported on spindles, or in some special form of bobbin holder, which allows it to revolve.

Yarn from bobbin passes through thread guide, which is fast to the traverse rod.

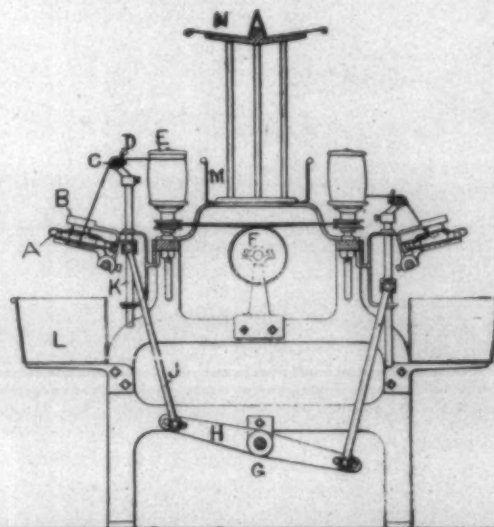


Fig. 42. Spooler.

Traverse rod moves up and down, a distance equal to the "lift" or length of spool barrel, and guides the yarn evenly on the spool.

Spindles are driven from tin cylinder with stout twisted yarn bands.

Spindle is made with a broad flange on which the spool rests. Spool fits loosely over spindle, and rests on the broad flange of spindle. It is made to revolve by the friction of its weight on this flange.

The fact that spools are driven, not by any positive grip, but by light friction of its own weight on spindle flange, causes yarn to be laid on with light and fairly uniform tension. There is danger of badly stretching the yarn by excessive speed of machine. This should be guarded against by providing spooler spindles enough to take care of the yarn.

From the fact that a spooler will run and wind yarn with apparent success at a speed considerably greater than is best for the yarn, there is a temptation to run the machine too fast.

A spooler runs at a uniform number of revolutions per minute, and therefore the yarn is wound on the barrel of a full spool with greater velocity (or greater number of yards per minute) than on empty spool. The speed of machine must

therefore be fixed at such a point as not to strain the yarn when at its greatest velocity. This speed varies with different numbers of yarn and with different kinds of stock. On the average, however, for numbers 16 to 30, the spindles should not exceed 800 to 700 revolutions. And the tin cylinder or driving shaft is usually 3 or 4 times diameter of spindle whorl, its speed should not exceed 250 to 175. Coarser yarns will stand higher speed and finer yarns should have slower speeds.

192. There are a number of different mechanisms in use for producing the traverse motion, most of which are so arranged as to be adjustable for various lifts of spool, and so designed as to pile up the yarn rather higher in the middle of spool than at ends, thus winding a barrel shaped spool, which naturally holds more than a perfect cylinder.

The lifting rods are placed about four feet apart, and are actuated by arms fastened to rock shaft. This point of attachment of connecting rods to rock arms is movable, so that amount may be adjusted. The point of attachment of lifting rod to connecting rod is also movable so that the position of traverse may also be adjusted. Thus it is possible to adjust amount of traverse, say from 5 to 7 inches, and also the point which traverse begins. Both of these adjustments are important, and should be independently made, first the amount, and then the position. The amount should be about 1-16 inch less than lift of spool. The position should be such that this 1-16 inch is equally divided between the two flanges of spool, thus guiding the yarn to within 1-32 inch of each flange or head. If yarn runs closer than this, the head will grow too large, and yarn will tangle when being wound off. If it stops much short of this amount, the yarn will wind shorter for awhile but finally jump over into the space at ends and tangle when unwinding.

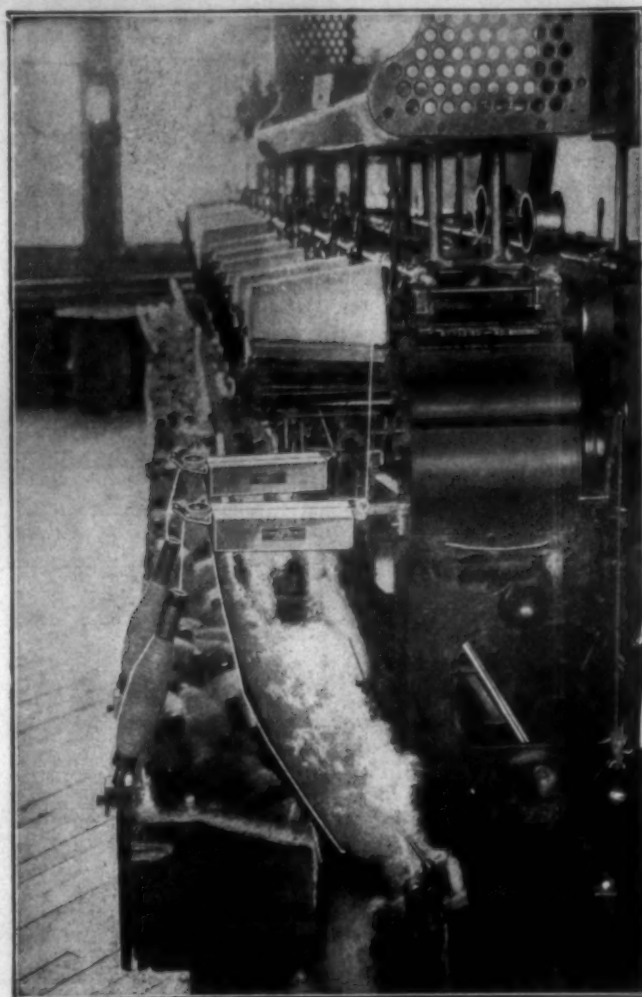
193. There is a variety of thread guides. Some of them not only guide the yarn on spool, but serve to break it whenever knots or lumps occur. This guide is made in two parts, so that the space through which yarns pass is adjustable, thus limiting to any desired extent the size of knot or lump that may pass. These guides are also adjustable as to position on traverse rod; so that should any one spool wind too high (having yarn rub and pile up against top flange or spool,) or too low, the individual guide may be moved to correct the trouble.

AUTOMATIC SPOOLER

194. The most modern type of machine for winding yarn from bobbin is the automatic spooler, which in conjunction with the new high speed warper has greatly cut costs and increased the efficiency of the processes in the mill. Spooling and warping is only an intermediate process in the manufacture of cotton into yarn, and, with the exception of removing a few imperfections, does not improve to any extent the quality of the yarn.

The automatic spooler is designed to run at a higher speed, ordinarily about 1200 yards per minute, and is so constructed that it is a great labor saving device, performing mechanically much of the manual labor formerly required. Tests have shown that one spooler girl can do the equivalent work of three girls on ordinary spoolers. The yarn is spooled at low tension, which causes less breakages of yarn, hence fewer knots, and preserves the elasticity of the yarn. All the breakage of yarn on the automatic spooler are tied mechanically into a durable and neat knot. This increases the efficiency of the weave room, since a large percentage of the stops there is caused by kink, and bad knots.

The following is a list of the savings obtained from a series of tests in a mill using automatic spoolers and high speed warpers:



The Truth About Slubs

It does not require inventions to make slubs, but often they are made, and that is another story.

We wish to tell you that the Eclipse Automatic Yarn Cleaner is sure death to slubs. The Eclipse Cleaner not only catches all the slubs but thoroughly removes all the dirt in the yarn.

Many knitting mills and spinning plants realize the extreme value of the Eclipse Cleaner, and are equipping their entire winding capacity with the Eclipse Cleaners. The basic principle of good knitting and weaving is thoroughly clean yarn.

Why make yourself believe you are getting the best results when you can absolutely improve your yarn with the Eclipse Cleaner.

The Eclipse Cleaner is easily attached to your winder. It does not add any additional cost to your winding costs. Upon request we will cheerfully give you a demonstration.

Eclipse Textile Devices, Inc. Elmira, N. Y.

Makers of

Automatic Yarn Cleaner, Automatic Stop Motion, Yarn Tension Device
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- (1) Saving of one-half the hands employed.
- (2) Saving in mill expenses.
- (3) Saving of one-half of the spooling and warping cost.
- (4) Saving of one-fourth to one-half of the yarn in the process.
- (5) Saving of one-half of the floor space.
- (6) Saving of one-tenth of the weavers' wages.
- (7) An increase in weave room production.

PRODUCTION.

195. For average conditions, a spool is 6 inches long between heads, and heads are 5 inches diameter. It is known as a 5 x 6 spool. The barrel is 1½ inches diameter, and the hole in centre ⅜ inches in diameter. The diameter of spool when half full is about 3 inches, and its circumference at this point about 9½ inches. If spindle runs 800 revolutions per minute, the hanks wound per day of 10 hours would be theoretically.

$$9\frac{1}{2} \times 800 \times 60 \times 10$$

$$36 \times 840$$

This works out 150.9 hanks per spindle per day with no allowance for stopping. Allowing 30 per cent. this would be 105.7 per day. Spooling No. 20, this would be 5.28 pounds. If No. 30, it would be 3.52 pounds generally speaking, 1 spindle of spooler will wind yarn produced by 12 to 15 spinning spindles.

GENERAL DATA.

196. Spoolers have spindles on both sides, same as spinning frames. They are about 4 feet wide, including bobbin boxes and vary in length according to number of spindles and gauge. A spooler for 4 x 6 spools would have a gauge of 4¾. Its length may be estimated by multiplying half the number of spindles by the gauge in inches and dividing by 12 to reduce to feet. To this result add 1½ feet for end frames and driving pulley. Thus a 100 spool spooler would measure

$$4\frac{3}{4} \times 50$$

$$+ 1\frac{1}{2} = 21 \text{ feet } 3 \text{ inches}$$

$$12$$

The weight is about 40 pounds per spindle.

Driving pulleys are usually 12 x 2½ tight and loose.

One operative can tend 40 to 50 spindles.

A 4 x 6 spool will hold about 18,000 yards of No. 20, or the yarn from 10 warp bobbins, 1½ x 6½. It will hold double this length of No. 30.

197. In ordering spoolers, it is always well to send to the shop a sample spool if spools are already on hand. If ordering a new outfit, request the maker of spoolers to send spool makers specifications or sample, so that spools will fit machine.

The English call spoolers "Bobbin winding machines."

(Continued next Week)

French Textile Industry Satisfactorily Employed.

The textile industry in northern France reports satisfactory conditions in most branches, states Consul P. C. Squire, Lille, to the Department of Commerce. All sections of the wool industry except hosiery indicate great activity. Sorting, combing, spinning and weaving are operating at full capacity, all plants having resumed the normal week of 48 hours while certain establishments are working overtime with double and triple shifts where such were in effect before the slump. Cotton spinning mills continue very

active while flax are working about normally. Linen weaving is not in such favorable condition, although a slight improvement is noted in the Hazebrouck area. Jute business is rather dull. Lace and net factories are in full operation. Embroidery is less favored.

Cowpens Mill Cowpens, S. C.

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BRISTOL, RHODE ISLAND

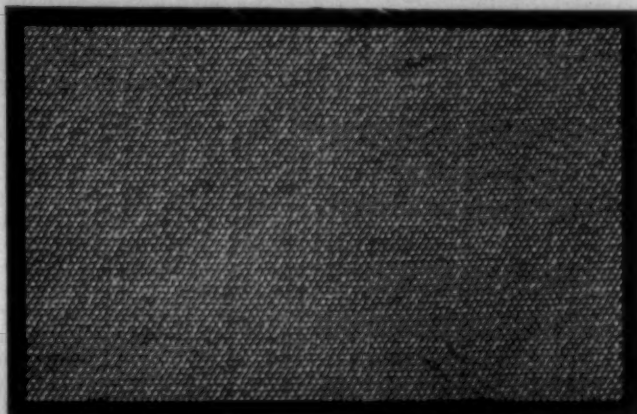


Use Dixon Patent Stirrup Adjusting Saddles, the latest invention in Saddles for Top Rolls of Spinning Machines. Manufacturers of all kinds of Saddles, Stirrups and Levers.

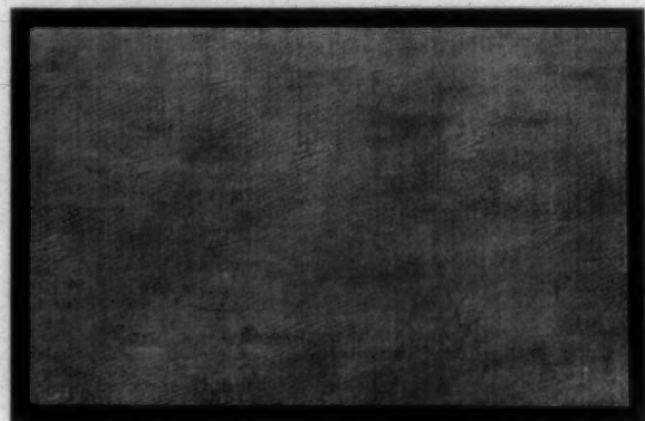
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Imported Cotton Cloths

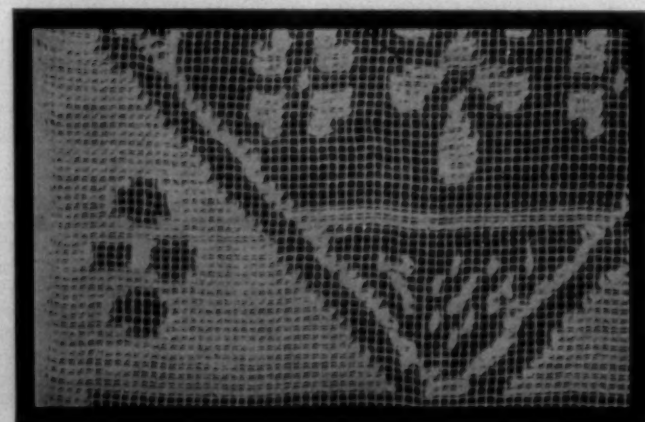
From Survey of United States Tariff Commission.



Sample No. 95.—Auto Top Cloth (Waterproof).
Plain woven. Finished width, 60 inches.
54 ends and 32 picks per square inch, finished.
Warp yarn, 12/3, grandrelle. Filling yarn, 12/2, dyed.
Weight, 0.63 linear yard (1.05 square yards) per pound, finished.
Grey tint drab warp, grey tint filling. Waterproof, by reason of close weave.



Sample No. 96.—Cotton Table Damask.
Jacquard woven, with filling-sateen figures on warp-sateen ground. Finished width, 36 inches.
73 ends and 80 picks per square inch, finished.
Warp yarn, 25s. Filling yarn, 26s.
Weight, 3.75 linear yards (3.75 square yards) per pound, finished.
Bleached, starched, and calendered.



Sample No. 97.—Madras Muslin.
Leno ground with Jacquard woven figures. Finished width, 40 inches.
42 ends and 41 picks per square inch, finished.
Warp yarn, 68s. Filling yarn, 58s, with 10s in clipped figures.
Weight, 10.29 linear yards (11.43 square yards) per pound, finished.
Clipped and bleached.

BOBBINS-SPOOLS SKEWERS-TUBES-ROLLS

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LOWELL, MASS.

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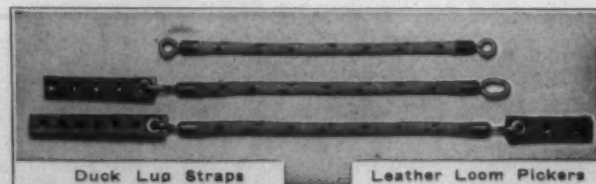
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Florence, Mass., U. S. A.

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W. R. Pederson, Resident Manager

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Employers' Liability Insurance, Automobile Insurance, Public Liability Insurance

Cash refunds to policyholders, amounting to nearly \$13,000,000 since organization, have realized savings to them of at least 20% of the standard stock company insurance cost.

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Samples and Catalog upon Request



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WM. F. VAUGHAN, Southern Representative

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GREENVILLE, S. C.

U. S. Ring Travelers are uniformly tempered which insures even-running spinning. They are also correct as to weight and circles. Quality guaranteed.

Broadway Central Hotel

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Accommodations for 1000 guests.

In the heart of the down-town business section.

Connections to all parts of the City within a few minutes from our door.

Newly Furnished and Renovated

High class service at low rates.

Large Banquet and Convention Halls.

Arrange for Your Conventions At Our Hotel

Manipulation of Rayon

(Continued from Page 7)

are examined and bent ones thrown out before the set is given to the drawer, and all reeds cleaned and touched up if necessary. The question of twisting viscose is often raised, but the process is just the same as in cotton and just as effective.

Weaving (Weft).

Weft is usually supplied on small paper tubes wound on the cross-wind principle, with all knots placed on the top of the pirn and not allowed to go on the case or either the filaments would be broken or tight picks would result, owing to the thread being partly held in its passage over the knot. When using weft, the following particulars should be carefully avoided:—Tight picks, slack picks, weft breakages, causing joinings or setting on places. The first essential to prevent these is a suitable shuttle nicely prepared, with a screw peg, and great care must be taken not to grip the yarn, but take the top of the tube and gently turn on the screw—if spring peg is used the pirn may occasionally slip off and blur the end of the tube. This will cause tight picks. The tube can be made right by gently pressing with the finger and thumb, and turning in the same direction as the tube is folded at the same time. Our method is to use a shuttle with a rather larger eye than the ordinary. Partly fill this with a tufting of worsted—this acts as a restrainer by not allowing the weft to come too freely through the eye. The shuttle is also lined with fur that touches the full length of the pirn—this prevents the weft from sloving off. If the furring and tufting is done correctly, the weft can be drawn from the pirn with the same tension from beginning to end, but if either too much fur or tufting is used, a slight variation will be noticeable and an occasional tight pick will result. If the skin of the fur is very thick, the weft will occasionally be jammed, and either break or stretch, when again a tight pick.

If the glue by which the fur has been fastened in has been allowed to touch the fur, hard particles will form, and as the weft unwinds and comes in contact with these we have a "tight pick." On the other hand, if insufficient tufting or fur is used the weft is allowed to come off the pirn too freely and a slack pick results. Slack picks are often caused by picking rather hard and not checking the shuttle well. An easy pick and shuttle well checked will seldom cause trouble on any loom. If the shuttle is well prepared it is a rare occurrence for viscose weft to break. This is fortunate, as joining or setting on places show up rather badly, so the reed should be held firmly in the reed-case, cranks kept firmly tight, and shafts and bearings not allowed to have much play, so that the weaver will have a reasonably chance of meeting the cloth evenly. Personally, prefer to use viscose in warp than weft. Given a reasonably decent loom, wire healds, flexible reed, gaited up by a good overseer, a Courtauld's prepared warp will weave as well, if not better, than most cotton warp mak-

ing a similar type of cloth. By a decent loom I mean one that has bearings and shafts in decent conditions, dobby jacks and hooks worn somewhere near equal, and not one stave lifting 4 1-2 in. and the next, owing to loss through worn parts, only lifting 4 in. In fact, any loom that will give good results on fine cotton will give the same with viscose.

When placing the warp in the loom the overseer should try to get a perfect warp line—that is, a straight line from the top of the beam to the fell of the cloth. By this means equal strain is secured. From experience, we find that running the warp straight in gives the best result—i.e., the warp is placed behind the loom on brackets extending from 12 in. to 20 in. beyond the back rest, and near the same level. Also, a clearer is used instead of lease roads. This leaves the yarn a clear passage from the healds to the warp, giving a stretch of the full distance. By this means there is no friction, and the yarn is not punished to the same extent as it would be if angle was more acute through having to be lifted from rods. The angle is about one in 20 with a clearer, against one in five with rods. The clearer is simply an ordinary heald shaft with ends drawn between the wires, and not through the eye, and the object is to divide the warp ends for the convenience of the weaver—four, five or six ends are drawn between each wire, according to the number of ends per inch in the warp. The clearer is slung half-way between the working healds and the back rest.

Flyboard or Raceboard.

When weaving all rayon warps it is an advantage to cover the raceboard with swandowns, especially if the finer deniers are being used. The swandowns forms a bed for the viscose ends, and the shuttle in its passage is really running on the swandown and not on the yarn. If the raceboard is bare, and the shuttle has the least variation in its flight, shuttle marking would be sure to follow, and if not attended to immediately the portion so marked would soon become a mass of broken fibres, and once this stage is arrived at it needs a skilled weaver to put everything right again. Another serious disadvantage of shuttle marking is that a piece so marked during weaving will show each place after dyeing, in appearance just as if the cloth had been marked by a piece of chalk.

In solid viscose warps temples are not absolutely necessary, but with soft weft an advantage, either simple fluted rollers or selvage temples being quite sufficient.

To prevent the emery roller from breaking the fibres on, say, an eight shaft satin, the usual practice is to use an emery-covered roller, and not tin filleting, though many people cover the tin with a coat of enamel paint. In many instances this answers the purpose, but emery is the safest. A good method of weighting is to use a fixed weight on one side and a balance weight on the opposite side. The balance can be obtained by using a spring at the dead end of the rope. The spring allows the rope to move slightly as the shed opens and

closes, and a slight oscillation takes place. The fixed weight prevents the beam for oscillating too far—by this means the yarn is always tight, and is not so easily rubbed up, whereas if the yarn is allowed to become slack fibres soon break, and the passage of the shuttle is retarded. The balance can also be accomplished by using a weight instead of a spring at the dead end, but this must not be near so heavy as the weight used on the weight end of the rope. For all viscose a fair amount of weight is required. When viscose is used in stripe goods, the foregoing remarks apply, except that the weighting of the viscose must be in relation to the cotton forming the ground. If a stripe is overweighted, the finisher will probably have trouble, no matter how careful he is. It is just as easy to tell when a viscose stripe is weighted right, as it is with a mercerized cotton or any other material where more than one beam is used.

General Comments.

If for any reason it is necessary for a weaver to unweave or pull back with viscose warp, the ordinary steel comb must not be used or the fibres will be broken to such an extent that it is almost impossible to start up again. A good plan is to use the point of the nippers with a sharp edge taken off, and it is surprising how easily the weft will come out, but that is owing to the slipping nature of the viscose.

I am not in favor of running the looms at a very high speed, owing to the greater liability of creating some of the faults previously mentioned—as in warp, shuttle marking; in weft, slack picks.

It is usual to cross the healds at a rather later point with viscose warp than with cotton, owing to its good covering qualities, and many cloths can be woven with ease that would be a difficult proposition if it was necessary to cross the healds at top center.

Cloths made from rayon alone are very smooth and lustrous and not so liable to catch dust and dirt as fabrics made from short staple yarn.

Rayon is not a competitor of the older fibres, but really an aid to all of them. If designers will only take advantage of the brilliance when making patterns, there is practically no limit to the variety of fabrics that can be made. I suggest that any manufacturer who will put his best into it will have no cause for regret.

The Truth About Ventilation

(Continued on Page 12)

badly ventilated working places often gives concern. There is no need for any one to fear direct physical injury from such a factor. It does not reflect any condition menacing to health except in the sense that anything disagreeable is liable to be mentally depressing. It is far better for a working force concerned about such matters to attend to the item of bathing than to worry about fresh air. The Japanese are fanatics in the matter of bathing, especially the taking of hot cleansing baths, and it has been noted by sanitarians traveling in Japan that there is never

any odor to a Japanese crowd. This is a message from the Orient that might be heeded by many people who are accustomed to maintain an attitude of superiority toward Eastern races.

Recent investigations have established the fact that drafts may constitute a real factor in the causation of colds. This is entirely in accord with common sense and common observation. A draft may be the immediate precipitating factor, but in a vast number of cases the original factor is the poor skin training of the individual that makes him susceptible to draft. Nevertheless, a well trained individual would do well not to expose himself to a steady draft of cold air, especially when he is not physically active and moving about.

There is no reason why ventilation should not be attained without exposing people to drafts. A fresh air fiend who insists on doing this is simply an ignorant and pig-headed fanatic. On the other hand, an individual who begins to shiver when he sees anyone approach a window to let in a little air is likewise ignorant and pig-headed and, moreover, pusillanimous. He has not the real courage to train himself to meet these environmental conditions which any healthy animal should be able to meet without making a prodigious fuss over it.

English Market Situation

There has been some little doubt expressed about the position of the cotton manufacturing industry in England and consequently it is interesting to note that under date of November 18th, Tattersall writes from Manchester, England, as follows:

"The anticipated definite trade revival has not yet come around. The delay in this desirable turn of events is due to the continued uncertainty in trade circles with regard to future values. There seems to be more nervousness at the moment than two or three months ago when the raw material was pence per pound dearer than today. The fact of the matter is—merchants are tired of receiving goods which were bought at higher figures than those ruling at the moment. Again there are distinct signs that India is short of cloth and instances are occasionally mentioned of there being great pressure for quick shipments. It is quite impossible to forecast what is likely to happen in China during the next few months, but things cannot get much worse than at the present time.

"The Near East is still under a cloud, but the healthy demand for the Continent is likely to be maintained. It is suggested in some quarters, that the complaints of spinners of yarns exaggerate the situation. Trade on a more remunerative basis cannot be far off. It is possible that a big forward move will not take place until all the Bureau Reports on the American crop are out of the way. The conditions, however, are distinctly favorable for a larger volume of trade. If Lancashire cannot secure more orders in the near future at the lower prices prevailing, then the outlook must be considered serious."

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Looms _____

Superintendent _____

Carder _____

Spinner _____

Weaver _____

Cloth Room _____

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Artificial Silk Weaving

(Continued from Page 14)

keeping the weft in contact with the rabbit skin or velvet, is to insert two small pegs of about 1/8 inch in thickness in the top of the shuttle between the pot-eye and the nose of the shuttle peg.

The picker should be kept perfectly smooth so as to present nothing on which the weft can catch in the box; while the front of the shuttle box may be covered with soft, smooth cotton cloth if there is any tendency either to cut or to shuttle-mark the weft. If these points receive careful attention, there will be little difficulty in weaving goods containing artificial silk weft.

The difficulties which arise when weaving artificial silk warps are of a totally different character, and chiefly arise from threads being at different tensions in the same warp, or from broken fibres which slide along the yarn and cause lumps or runners that break down the neighboring threads and cause faulty weaving. Whenever possible it is best to have the yarn warped and sized directly on to the weaver's beam, as this saves handling, and the risk of making slack and tight places on the warping mill and of uneven matching in the dressing or beaming.

Some of the folded yarns which have had a fair amount of twist put into them will often weave well without sizing, providing the doubling is well and evenly done; but as the twist destroys some of the lustre, folded yarns are only used for special effects, for dry finished goods, or by those who do not know how to get the best results. The single soft twisted yarns are most lustrous, and look fuller in the cloth; but they must be very well sized or the fibres become badly broken and frayed. In its sized condition the yarn looks thin and wiry, but when the size has been washed off in the dyeing and finishing processes, the threadiness disappears and the yarn bursts open, allowing the fibres of the different threads to lie very close together.

Sized warps which have to be kept in stock for some time should be carefully stored in a dry place, as the size which is used is very susceptible to dampness. Many of the manufacturers who have failed to weave artificial silk warps have done so because their store rooms or weaving sheds were not kept sufficiently dry. Attention should next be directed to gaiting the warps so that all undue friction is avoided in the weaving. In order to obtain this result the threads from the ground and artificial silk warps must be made to come off their respective beams, parallel with each other, so that they will fit into their respective places in the pattern without rubbing each other.

Artificial silk yarn is very strong when perfectly dry, and will stretch a good distance, but it is non-elastic, and does not spring back to its normal length when the strain is removed. This makes it necessary to exercise care in tensioning the warp, and if possible the beam and back rail bearer should be made to oscillate slightly with the opening and closing the the shed. The faults

which arise from the over-tensioning of the warp are breakages of fibres and the consequent runners on the yarn, flat and thready looking figures, and slack and tight threads in the shed.

Some weavers have difficulty in tying up a broken thread with a knot that will weave well in the reed, and have a habit of weaving broken threads long enough before taking them in. This causes a tension knot and a great amount of mending in the piece room, and should be avoided by teaching the weaver how to tie a small, firm, and non-slipping knot, formerly referred to as the "tension" knot.

The friction of the shuttle upon the artificial silk yarn should be avoided as far as possible by weaving the figure with the warp on the face of the cloth, and by lifting the figuring warp a little higher and depressing it a little lower than the ground warp. But on account should it be allowed to press on the going part, nor be subjected to over-shedding. The shedding should be also timed to avoid a large amount of friction in the warp by the heating up of the weft on a closed shed. Most of the experienced firms in weaving artificial silk use swans-down along the shuttle face to reduce friction to a minimum. This material, seccontined to the flat of shuttle-race, gives very effective results.—Yorkshire Evening Argus.

Remarks On the Dyeing of Rayon

(Continued from Page 10)

operation carried out with tannin and antimony. "The long process involved is detrimental to the material. It is stated, however, that by mordanting with Katanol better results are obtained."

The Sulphur Colors.

Apparently the Sulphur Dyes are less satisfactory than other dyestuffs when it comes to applying them to rayon. "They give very unlevel results in the majority of cases, and the sulphide both does not leave the silk (rayon) in very good condition. They, however, find employment where good fastness to cross-dyeing on warps is required."

The Vat Dyes.

The Vat Dyes are sometimes resorted to when it is necessary to produce dyeings of a very high degree of fastness. It appears that it is exceedingly difficult to dye rayon with this class of colors. In order to avoid unlevel results, one-half, or thereabouts, of the usual quantity of caustic soda is to be employed. Furthermore, the rayon is to be carried through the process just as rapidly as is consistent with the frailty of the material. "The vat dyestuffs, like the direct colors, have a tendency to dye unevenly on viscose containing variable qualities."—Textile Colorist.

Open Providence Office

The Mill Devices Co., Inc., Gastonia, N. C., manufacturers of the Boyce Weavers Knotter, announces the opening of a sales and service office in the Union Trust Building, under the management of Clifford E. Herrick.

Rapid Development Rayon Production and Demand.

DESPITE the enormous increase in production, the manufacturers have been unable to satisfy the demand for rayon and the industry is experiencing a period of rapid development in practically all of the important manufacturing countries of the world, according to the Textile Division, Department of Commerce.

In the United States, the production and consumption of rayon continued their steady growth during the current year. The output of the American plants for the first half of 1925 is reported as slightly over 24 million pounds and, as they have been working at capacity all year, their annual production is estimated by trade sources to be in the neighborhood of 50,000,000 pounds. This figure shows a remarkable increase over the output of recent years. In 1920 the American plants produced 8,000,000 pounds, almost doubling the output in the following year to 15,000,000. The year 1922 showed a further increase to 24,000,000 and in 1925 this amount was produced from January to June.

Figures compiled by important rayon manufacturers show that the knit goods industry was the largest consumer of rayon, taking 25 per cent of the entire American consumption in 1923. The hosiery manufacturers followed with 22 per cent, and considerable quantities were taken by the cotton mills, silk mills, and other branches of the textile industry. One important advantage to the consumers of rayon is the price stability. The producers announced their prices for the coming quarter, open their books for orders and allot their output. During a considerable portion of 1925 premiums were paid for immediate deliveries of yarns.

The competition of foreign yarns with the producers in this country is dependent chiefly on the American supply available for consumption. In 1922 the importation totalled 2,088,000 pounds. In the following year they amounted to 3,906,000, almost double the takings of 1922. This was followed by an appreciable price cut by the principal American producers, which resulted in greatly reduced imports in 1924. In 1925, however, the inability of the plants in the United States to supply the demands for the fiber resulted in the importation of over 5,000,000 pounds valued at \$5,769,925 which was approximately one million dollars less than the value of the 1923 imports which, however, only totalled 3,906,037 pounds.

France, which is the old home of the natural silk industry, has now a well established rayon industry. Until recently this industry was localized in the South, but it has now become well rooted in the Roubaix-Tourcoing woolen textile district of the North. Notwithstanding the large output of the French works, it is absorbed almost entirely in the country.

England has not been slow to make rayon production one of its important textile branches, and the cotton and wool textile circles have become large users. The first man-

ufacturers have increased their productive capacity up to the extreme limit and new factories are frequently being built. One of the largest English producers has started a branch of the works in Canada, India and other countries.

In Germany the break-up of the munition manufacturing industry after the war provided the stimulus for the establishment of the rayon industry in order to keep factories employed. Since then the industry has prospered, and at present is in a much better position than the other textile branches in Germany.

Quite remarkable is the development of the industry in Italy, where it is favored by cheap and capable labor and a home production of the necessary chemicals. This country has attained in about four years a powerful position as a manufacturer and exporter of rayon. The consumption in Italy is mainly of the home product, and each year that passes sees an increasing surplus for export.

The Japanese annual demand for rayon is increasing steadily and at present amounts to 3,500,000 pounds. At first consumers in Japan did not seriously consider the use of the artificial product, due to the fact that the cultivation of the silk worm is a national industry on which the prosperity of the country depends, and naturally anything that retarded the production of silk was looked on askance. Due to lower prices and increasing popularity of rayon, not only were large quantities imported but its manufacture in Japan on a large scale is now assured.

Arabian Grey Cloth Market Controlled by Japan.

The outlook in the Arabian market for American grey sheetings is not promising, reports Vice Consul J. L. Park, Aden, to the Department of Commerce. Japan has this and east African markets well in hand, having obtained their hold by a campaign of underselling. Since Japan is now well established, it will be exceedingly difficult to compete, even though the difference in price is materially reduced. In the early part of 1925, there was a difference of from 40 to 60 rupees (rupee equals about \$0.36 at current exchange) between Japanese and American sheetings. The Japanese prices gradually advanced as American and British cloths were forced out of the market, so that now the difference in price is only about 20 rupees per standard bale of 750 pounds. Although in wearing quality the Japanese sheetings compare favorably, they are obviously inferior as regards finish and evenness of thread.

Aibel Bros. Have Southern Representative.

J. K. Wooters, formerly with the Greenville Cotton Mills, Greenville, N. C., has located in Charlotte as the Southern representative of Aibel Bros., of New York City, who sell rayon in skeins and in cops.

Aibel Bros. are in position to furnish the rayon in white and in colors but do not handle rayon beams.



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Sheetings, Combed Peeler Yarns

Cotton Goods

New York.—The week was very quiet in cotton goods markets. Holiday sentiment was too well developed to allow for large business and while they were some good orders, most buyers and sellers were not interested in large business.

The ginning report was taken as confirmation of the Government estimate of the cotton crop and seem to remove all doubt as to size of the crop. It is believed that the ginning report will have a stabilizing effect on cotton prices and remove much of the uncertainty that has been prevalent. A better and steadier demand for goods is anticipated after the markets settle down again following the holidays.

Sales of print cloths and sheetings were rather small and prices were reported as slightly lower.

Print cloths sold for January-February delivery at 8½¢ for 64x60s, 7½¢ for 60x48s, and 12¢ for 80s. Mills were reluctant sellers at these figures and would not go into March only in a small way. Bidding on sheetings ½¢ under current prices by bag manufacturers had not made sales progress late in the week, business on 6.15s at 6¢ and 5.50s at 7¢ having been declined quite generally. Some business was done in pajama checks at 10¢ for 72x80s. There was very little doing in other carded yarn goods.

Trade in tire fabric is in the midst of a seasonably dull period. Most of the mills are busy on orders taken some time ago and are in need of business at this time. Quotations remained unchanged.

Cotton duck prices held virtually unchanged throughout the week. The actual market prices have been somewhat hard to follow, due to irregular trading. Some orders at concessions were reported taken by mills who are anxious to book ahead.

Further inquiry was noted for rayon and cotton mixed alpacas. Reports did not indicate whether the business had been placed. The interest included gray and 100 per cent colored cotton warps, the last quoted 29¢ for the combed and 25¼¢ to 26¢ for the gray yarn style.

Advices were to the effect that some quiet combed broadcloth business had been placed last week at 49¢ in the East for the 128x68s. The usual order ran between 500 and 1,000 pieces. The carded styles were neglected recently, with 90x60s now 12½¢ quoted; 100x60s, 13¼¢; 100x64s, 13¼¢; 112x60s, 14¼¢; half combed, 16¢ to 16¼¢; combed, 17¢ to 17¼¢. There was no change in combed 144x76s which were firm at 22½¢ to 23½¢.

A moderate amount of spot business was put through in combed lawns at steady prices. There had been some clearances of 30-inch 72x-60s 10-yard carded lawns at 7½¢, but otherwise the carded section was quiet. The 40-inch 88x80s 9-yard were 13½¢ to 13¾¢ and 7-yard in the same style 15¢ to 15¼¢.

A few voiles have been moved though not in volume. The extra hard twist continues available at 12¢ in some quarters. Imported 100s twoply both way were on the market as low as 26¢ and up to 31¢.

The week was unusually quiet in the Fall River print cloth market. Some buyers were in on concession basis, but mills were unwilling to get lower than they have up to the present time. Some sateen business was put through on the basis of 12½¢ for 4.37, while small lot sales of 36-inch low counts completed the volume.

Cotton goods prices in this market were quoted as follows:

Print cloths, 28-in., 64x64s	6½
Print cloths, 28-in., 64x60s	6¼
Print cloths, 27-in., 64x60s	6
Gray g'ds, 38½-in., 64x64s	9¼
Grays goods, 39-in., 68x72s	10
Gray goods, 39-in., 80x80s...	12
Brown sheetings, 3-yard...	12½
Brown sheetings, 4-yard...	10½
Brown sheetings, stand...	13½
Ticking, 8-oz.	22½
Denims	19
Staple ginghams, 27-in....	11½
Kid finished cambrics	9½a10½
Dress ginghams	13½a17½
Standard prints	9½

New DuPont Dye.

The Dyestuff Department of E. I. du Pont de Nemours & Co., announce the production of another addition to their extensive line of vat colors. This new product is a red violet offered under the name of Ponsol Red Violet RRNX Paste.

As this product is exceptionally fast to light, washing, water, cross-dyeing, chlorine, etc., even in very delicate shades, Ponsol Red Violet RRNX Paste can be used not only for the production of violets but also for pale bluish pinks or in combinations for mode shades or for very evenly and is not affected by heat and moisture, thus overcoming the difficulties which arise when using some of the other vat violets.

The announcement of this product is especially interesting because this is the first time that it has been manufactured and offered by an American concern.

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The Yarn Market

Philadelphia, Pa.—There was little change in the cotton yarn market during the week, although prices on carded yarns by the dealers in this market showed further weakness. Sales were generally small and with the holidays and inventory periods, there was little interest in business.

A few good sales of insulating yarn were reported, one user taking 250,000 pounds, with deliveries extending through March. A good deal of cheap yarn was offered off and on during the week, although it was understood that such offerings usually related to rather small lots. Spinners have lowered quotations about a half cent through the list under last week, but are much firmer in their prices ideas than quotations here would indicate.

It is believed here that the ginning report will have a settling effect on the market and remove practically all doubt as to the size of this year's crop. It is now expected however, that any large amount of new business will develop for several weeks or until the holiday interruptions are entirely out of the way.

Combed yarns in spinners' hands remained very firm throughout the week, although some combed counts were offered here by dealers at prices less than spinners would accept. The combed yarns mills have booked large orders within the past sixty days and are under no necessity of securing any large amount of new business for some time to come. Stocks are very small and most of the Southern combed yarns mills are running behind in their deliveries.

Prices in this market were as follows; although a great deal of irregularity has developed and most quotations are regarded as purely nominal:

Southern Two-Ply Chain Warps.		
8s	35	a
10s	36	a
12s	37	a
14s	37½	a
16s	39	a
20s	42	a
24s	43½	a
26s	44½	a45
30s	56	a57
40s	66	a67
50s		
Southern Two-Ply Skeins.		
8s	34	a
10s	35	a
12s	36	a
14s	37	a
16s	38	a38½
20s	41	a
24s	42½	a43
26s	44	a
30s	52	a
36s	54	a55
40s	57	a58
50s	65	a66
60s	72	a
70s	82	a33
80s	94	a
Part Insulated Waste Yarns.		
6s, 1-ply	29½	a
8s, 2, 3 and 4-ply	30½	a31
10s, 1-ply and 3-ply	33	a
12s, 2-ply	34	a
16s, 2-ply	36	a
20s, 2-ply	37	a
26s, 2-ply	42½	a
30s, 2-ply	43	a44
Duck Yarns—3, 4 and 5-ply.		
8s	34	a
10s	35	a
12s	36	a36½
16s	37	a37½
20s	38	a38½
Southern Single Chain Warps		
10s	35	a
12s	36	a
14s	37	a
16s	38	a

16s	37½	a
20s	39	a
24s	41	a
26s	42	a
30s	44	a45
40s	56	a
Southern Single Skeins.		
6s	34	a
8s	34½	a
10s	35	a
12s	36	a
14s	36½	a
16s	37½	a
20s	38	a
22s	40	a41
24s	41	a
26s	42	a43
30s	44	a45
Southern Frame Cones		
8s	24	a
10s	24½	a
12s	25	a
14s	25½	a
16s	26	a
18s	27	a
20s	28	a
22s	38½	a
24s	40	a40½
26s	41	a42
28s	42½	a43
30s*	41½	a42
30s	45	a46
40s	51	a52

*Tying in.		
Southern Combed Peeler Skeins, Etc.—Two-Ply.		
16s	56	a60
20s	58	a62
30s	65	a67
36s	75	a80
50s	87½	a90
60s	90	a95
70s	105½	10
80s	118½	20

Southern Combed Peeler Cones.		
10s	48	a49
12s	49	a50
14s	49½	a50½
16s	52½	a
18s	51	a52
20s	52	a
22s	53	a
24s	56	a
26s	56½	a
28s	57	a
30s	60	a
32s	62	a
34s	65	a
36s	72	a
38s	74	a
40s	75	a
50s	80	a
60s	90	a95
70s	105½	10
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26s	49	a
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30s	53	a

Changes in United States Import and Export Classifications.

Attention is called by the Department of Commerce to the fact that various changes are being made, effective January 1, 1926, in the statistical statements showing United States imports and exports of textile commodities. New classifications are being added which will show United States exports of tire fabrics, rayon knit underwear, rubberized piece goods and hospital sheeting, knitting machines; and imports of henequen, sisal, cotton blankets, fiber mats, other floor coverings. These new statements will be made available to interested firms upon application to the Textile Division, Bureau of Foreign and Domestic Commerce, Washington.

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Now employed but desires change to position offering larger opportunity. Many years' experience and best of references from present and past employers. If interested, address H. S. T., care Southern Textile Bulletin.

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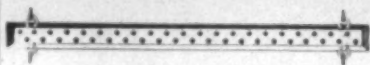
By January first, position as spinner in about 10,000 or 15,000 spindle mill. Married, 35 years old, strictly sober. Can furnish best of references by past and present employers. Address B. W. E., care Southern Textile Bulletin.

WELL DRILLING AND DEEP WELL PUMPS

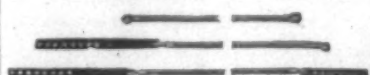
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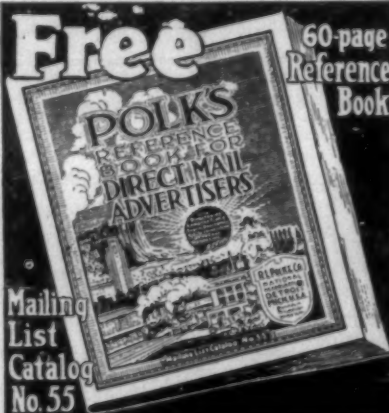
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WANT position in mill office as book keeper, auditor, paymaster or cost accountant. Would take place in superintendent's office. Full graduate from textile school and have considerable mill experience. No. 4734.

WANT position as overseer fancy cloth room or finishing department. Have had 18 years experience in finishing room, including experience on chambrays and gingham. Good references. No. 4735.

WANT position as overseer of carding or spinning. Reliable man of long experience who can furnish satisfactory references. No. 4736.

WANT position as overseer weaving on sheetings, print cloth, drills, duck, or osnaburgs. Eight years as night overseer and second hand in large mill. I. C. S. graduate in warp preparation and plain weaving. Age 39. Married, sober, now employed. Good references. No. 4737.

WANT position as master mechanic. Experienced on both steam and electric drive and am hard worker who can run your job right. References. No. 4738.

WANT position as master mechanic or machinist. Steam or electric drive, can handle turbines, engines, generators and am first class all around man. No. 4739.

WANT position as superintendent of yarn or cord fabric mill. Age 33, married, have been with large mill for past 8 years, 3 years as assistant superintendent. Good reasons for wanting to change and can give good references. No. 4740.

WANT position as superintendent or overseer carding in large mill. Long practical experience and can give first class references. No. 4741.

WANT position as overseer spinning in good mill. Can come on short notice. Experienced, reliable man of good habits and character and can give suitable references. No. 4742.

WANT position as overseer carding or spinning, or assistant superintendent of yarn mill. Long experience and can furnish references to show character and ability. No. 4743.

WANT position as overseer carding and spinning or second hand. Have had several years experience. Am I. C. S. graduate. Age 30, references. No. 4744.

WANT position as overseer of carding spinning with good Southern mill. Experience and training qualify me as first class man in every respect. No. 4745.

WANT position as superintendent, carder or spinner. Prefer North or South Carolina. Now employed. First class references. No. 4746.

WANT position as overseer weaving. Experienced on wide variety of goods and can run the job in thoroughly competent and satisfactory manner. No. 4748.

WANT position as overseer spinning, twisting and winding. Excellent references to show long record of satisfactory service. No. 4749.

WANT position as superintendent of small mill or carder and spinner in larger one. Experienced reliable man who can give first class references to show character and ability. No. 4750.

WANT position in slashing, drawing-in, spooling or warping department. Am young man, I. S. C. graduate and can keep production up and seconds down. Good references. No. 4751.

WANT position as master mechanic; 13 years experience in mill steam plant and machine shops. Can furnish good references from previous employers. No. 4752.

WANT position as superintendent of cloth mill. Long experience on many fabrics and can get results. Fine references. No. 4753.

WANT position by practical weaver of long experience. Have been overseer for past two years, also second hand for four years. Understand plain, dobby and box weaving. Best of references. No. 4754.

WANT position as overseer spinning or would take good second hand's place. Long experience and good references to show character and ability. No. 4755.

WANT position as overseer weaving, 21 years experience in mill, 11 years in weaving. Age 36, married, now employed. Can furnish good references. No. 4756.

WANT position as overseer plain weaving, or would consider place as second hand in large mill. Have had about 20 years' experience, mostly on plain weaving. Good references. No. 4757.

WANT position as carder, spinner or both. Now employed as spinner. Have had 25 years experience in carding and spinning, 10 years as overseer. Good habits and can give good references. No. 5758.

WANT position as carder or spinner in large mill or superintendent of smaller mill. Would like opportunity to submit references showing my record. No. 4759.

WANT position as overseer carding. Can run any card room and run it right. Best of references from past employers. Can come on short notice. No. 4760.

WANT position as carder or spinner or either, pay to be at least \$36 weekly. Can come on short notice and give references to show ability and character. No. 4761.

WANT position as superintendent of yarn mill or mill on plain weaving. Now employed as overseer carding but am capable of running mill. Good references. No. 4762.

WANT position as master mechanic, maintenance engineer, superintendent of power or general mechanical superintendent. Thoroughly qualified by training, experience and ability to take complete charge of your power problems. No. 4763.

WANT position as overseer carding; 25 years experience in some of the best mills in the South. Can give excellent references as to character and ability. No. 4764.

WANT position as master mechanic. Long experience in both steam and electric power work and can handle machine shop in first class manner. Best of references. No. 4765.

WANT position as superintendent of small yarn mill or tire duck plant. Superintendent for past 6 years, 14 years experience on cord and tire duck. My references are unusually good and from well known mill men. No. 4766.

WANT position as superintendent of yarn. Qualified by experience and training to handle either in satisfactory manner. No. 4767.

WANT position as roller coverer. Now employed, but wish to change. Can do first class work in every respect. Good references. No. 4768.



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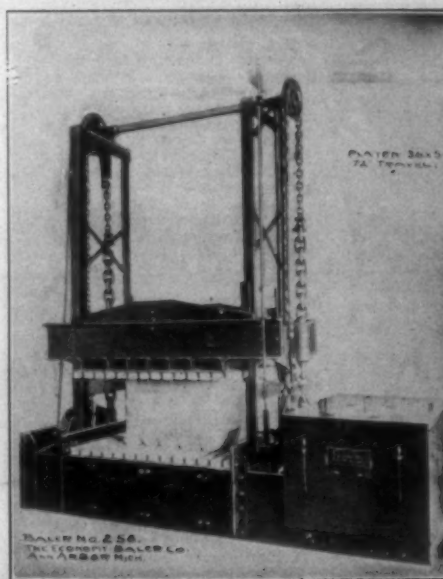
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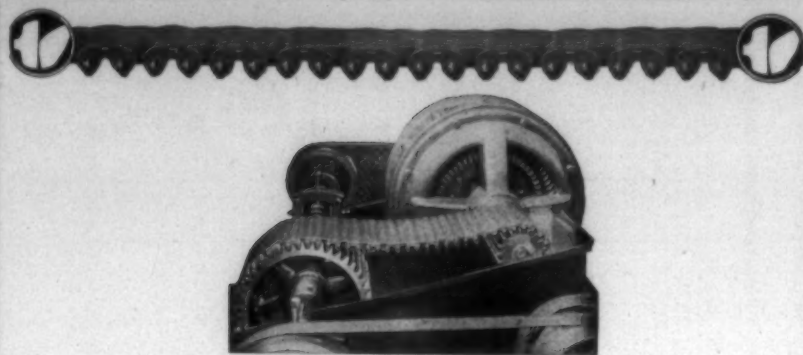
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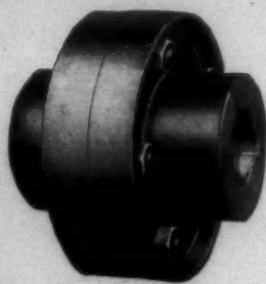


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